

STIC search 10/735,732

=> FILE REG

FILE 'REGISTRY' ENTERED AT 13:39:12 ON 15 NOV 2007

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polymer formula (I)

=> D HIS

FILE 'LREGISTRY' ENTERED AT 10:06:07 ON 15 NOV 2007

L1 STR

FILE 'REGISTRY' ENTERED AT 10:09:38 ON 15 NOV 2007

L2 50 S L1

L3 SCR 2043

L4 48 S L1 AND L3

FILE 'LREGISTRY' ENTERED AT 10:10:13 ON 15 NOV 2007

L5 STR L1

FILE 'REGISTRY' ENTERED AT 10:14:07 ON 15 NOV 2007

L6 45 S L5 AND L3

FILE 'HCAPLUS' ENTERED AT 10:15:02 ON 15 NOV 2007

L7 5536 S TOKUDA ?/AU

L8 2550 S TAKASU ?/AU

L9 17710 S SEO ?/AU

L10 1 S L7 AND L8 AND L9

SEL RN

FILE 'REGISTRY' ENTERED AT 10:15:44 ON 15 NOV 2007

L11 18 S E1-E18

L12 2 S L11 AND PMS/CI

L13 16 S L11 NOT L12

L14 756 S L5 AND L3 FUL

SAV L14 GAR732/A

FILE 'LREGISTRY' ENTERED AT 10:18:49 ON 15 NOV 2007

L15 STR L5

FILE 'REGISTRY' ENTERED AT 10:19:54 ON 15 NOV 2007

L16 0 S L15 SSS SAM SUB=L14

L17 4 S L15 SSS FUL SUB=L14

SAV L17 GAR732A/A

L18 752 S L14 NOT L17

FILE 'HCA' ENTERED AT 10:21:02 ON 15 NOV 2007

L19 5 S L17
L20 512 S L18
L21 125674 S (ELECTROLUM!N? OR ORGANOLUM!N? OR (ELECTRO OR ORGANO OR
L22 QUE COND# OR CONDUCT?
L23 QUE ELECTROD## OR ANOD## OR CATHOD##
L24 18293 S HOLE#(2A) (INJECT? OR TRANSPORT? OR MIGRAT? OR TRANSMIGR
L25 75 S L20 AND L21
L26 200 S L20 AND L22
L27 110 S L20 AND L23
L28 11 S L20 AND L24
L29 23 S L25 AND L26
L30 17 S L25 AND L27
L31 75 S L26 AND L27
L32 7 S L25 AND L26 AND L27
L33 27999 S LED/IT OR L(W)E(W)D OR LIGHT?(3A) (EMISSION? OR EMIT?) (3
L34 23 S L20 AND L33

FILE 'REGISTRY' ENTERED AT 13:33:26 ON 15 NOV 2007

SEL L13 4, 6, 8, 9, 10, 12, 14 RN

L35 7 S E19-E25

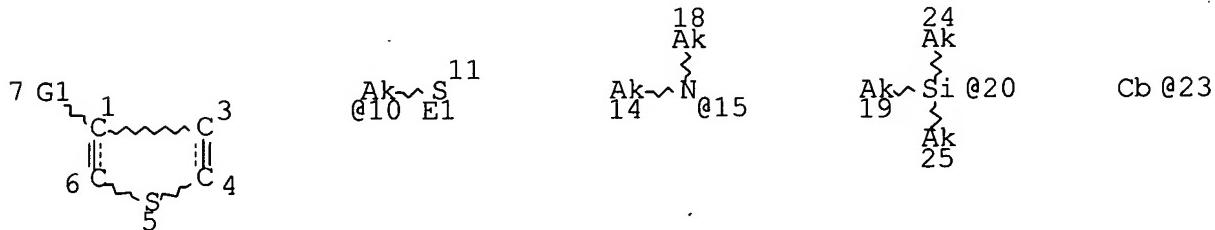
FILE 'HCA' ENTERED AT 13:35:55 ON 15 NOV 2007

L36 22595 S L35
L37 2 S L20 AND L36
L38 24 S L19 OR L28 OR L32 OR L37
L39 37 S (L29 OR L30 OR L34) NOT L38
L40 21 S 1840-2003/PY, PRY AND L38
L41 27 S 1840-2003/PY, PRY AND L39
L42 19 S 1840-2002/PY, PRY AND L38
L43 25 S 1840-2002/PY, PRY AND L39

FILE 'REGISTRY' ENTERED AT 13:39:12 ON 15 NOV 2007

=> D L17 QUE STAT

L3 SCR 2043
L5 STR



VAR G1=10/15/20/23

NODE ATTRIBUTES:

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CONNECT IS E2 RC AT 5
CONNECT IS E2 RC AT 10
CONNECT IS E1 RC AT 11
CONNECT IS E1 RC AT 14
CONNECT IS E3 RC AT 15
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CONNECT IS E1 RC AT 25
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GGCAT IS SAT AT 10
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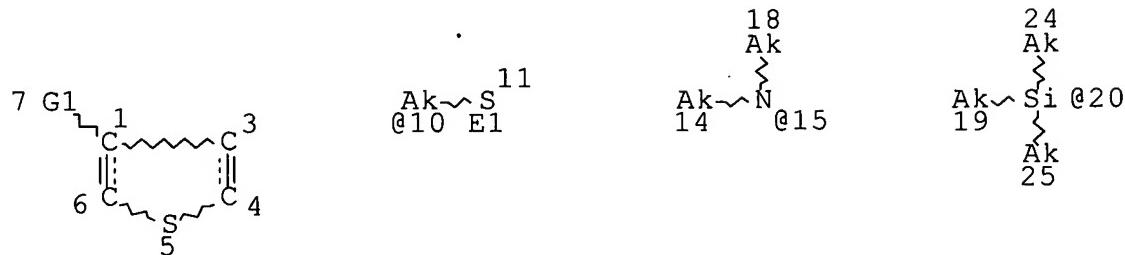
GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE

L14 756 SEA FILE=REGISTRY SSS FUL L5 AND L3
L15 STR



VAR G1=10/15/20

NODE ATTRIBUTES:

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CONNECT IS E2 RC AT 5
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GGCAT IS SAT AT 10
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DEFAULT ECLEVEL IS LIMITED
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GRAPH ATTRIBUTES:

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RSPEC I
NUMBER OF NODES IS 15
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STEREO ATTRIBUTES: NONE

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=> FILE HCA
FILE 'HCA' ENTERED AT 13:40:22 ON 15 NOV 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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=> D L40 1-21 BIB ABS HITSTR HITIND
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```
L40 ANSWER 1 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 143:142336 HCA Full-text
TI Polymeric, phosphorescent, organically semi-conductive emitter
materials based on perarylated boranes, method for their production
and use thereof
IN Kanitz, Andreas; Rogler, Wolfgang; Roth, Wolfgang; Sonnabend,
```

Thomas; Woerle, Jasmin
PA Osram Opto Semiconductors G.m.b.H., Germany
SO PCT Int. Appl., 44 pp.
CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005063919	A1	20050714	WO 2004-DE2833	200412 29
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	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	DE 10361385	A1	20051013	DE 2003-10361385	200312 29
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	EP 1699898	A1	20060913	EP 2004-816282	200412 29
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	R: DE CN 1902295	A	20070124	CN 2004-80039411	200412 29
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	JP 2007522271	T	20070809	JP 2006-545917	200412 29
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	US 2007191587	A1	20070816	US 2007-585182	200703 29
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	PRAI DE 2003-10361385	A	20031229	<--	

WO 2004-DE2833

W 20041229

AB Phosphorescent hydrogen-terminated polyarylboranes are described which include repeating units incorporating bivalent phosphorescent organometallic compds of Ir, Ru, Os, or Pt, repeating units having a matrix-forming structure, and/or repeating units incorporating **hole-transporting** 2-aminothiophene or 2-aminothiazole groups. The polyarylboranes may be used as triplet emitters and/or electron-transporting layers in org. electroluminescent devices. When the polyarylboranes have only one type of repeating unit, they may be employed in blends. Methods for prep. the polymers using reactions of lithiated compds. and Grignard compds. with boron halides are also described.

IT 858939-55-6P

(phosphorescent hydrogen-terminated polyarylboranes and their prodn. and use)

RN 858939-55-6 HCA

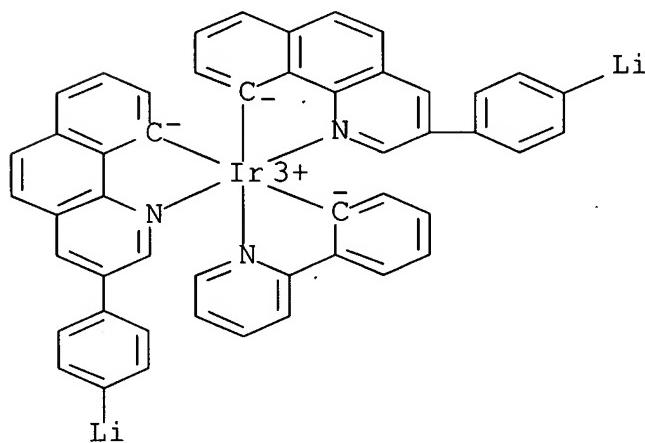
CN Lithium, bis[μ - (benzo[h]quinoline-3,10-diyl-
 κ C10, κ N1)-1,4-phenylene][[2-(2-pyridinyl-
 κ N)phenyl- κ C]iridium]di-, polymer with
[5-(diphenylamino)-3,4-diphenyl-2-thienyl]lithium,
[μ -[1,4-phenylenebis[(phenylimino)(3,4-diphenyl-5,2-
thiophenediyl)]]]dilithium and (T-4)-trifluoro[1,1'-
oxybis[ethane]]boron (9CI) (CA INDEX NAME)

CM 1

CRN 858939-53-4

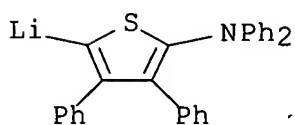
CMF C49 H30 Ir Li2 N3

CCI CCS



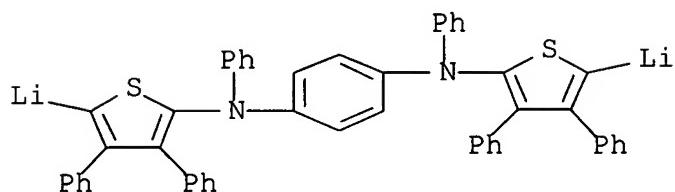
CM 2

CRN 858370-92-0
CMF C28 H20 Li N S



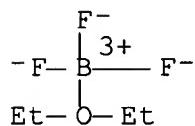
CM 3

CRN 858370-91-9
CMF C50 H34 Li2 N2 S2



CM 4

CRN 109-63-7
CMF C4 H10 B F3 O
CCI CCS



IT 858939-54-5P

(phosphorescent hydrogen-terminated polyarylboranes and their
prodn. and use)

RN 858939-54-5 HCA

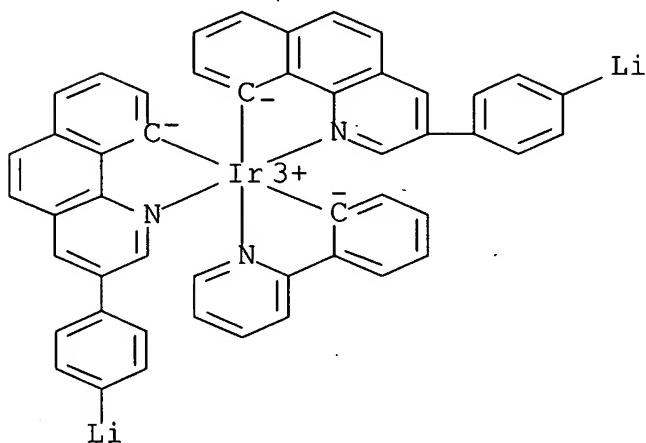
CN Lithium, bis[μ -[(benzo[h]quinoline-3,10-diyl-
 κ C10, κ N1)-1,4-phenylene]] [[2-(2-pyridinyl-
 κ N)phenyl- κ C]iridium]di-, polymer with
[μ -[1,4-phenylenebis[(phenylimino)(3,4-diphenyl-5,2-
thiophenediyl)]]]dilithium and (T-4)-trifluoro[1,1'-
oxybis[ethane]]boron (9CI) (CA INDEX NAME)

CM 1

CRN 858939-53-4

CMF C49 H30 Ir Li2 N3

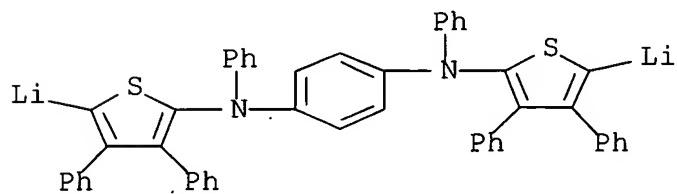
CCI CCS



CM 2

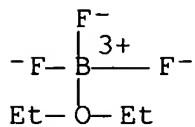
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CMF C50 H34 Li2 N2 S2



CM 3

CRN 109-63-7
CMF C4 H10 B F3 O
CCI CCS



IC ICM C09K011-06
ICS H01L051-30
CC 73-1 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 76
IT 858939-55-6P
(phosphorescent hydrogen-terminated polyarylborananes and their prodn. and use)
IT 858939-54-5P
(phosphorescent hydrogen-terminated polyarylborananes and their prodn. and use)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 2 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 141:113852 HCA Full-text
TI High-molecular compounds, **electroluminescents** and
light emitting devices
IN Takasu, Takako; Seo, Satoshi; Nomura, Ryoji
PA Semiconductor Energy Laboratory Co., Ltd., Japan
SO PCT Int. Appl., 47 pp.
CODEN: PIXXD2
DT Patent
LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI WO 2004058850	A1	20040715	WO 2003-JP16029	200312 15

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CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
KR, KZ, LC, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,
SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN,
YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
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AU 2003289345 A1 20040722 AU 2003-289345
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EP 1580209 A1 20050928 EP 2003-780763
200312
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CN 1732201 A 20060208 CN 2003-80107569
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US 2004241494 A1 20041202 US 2003-743337
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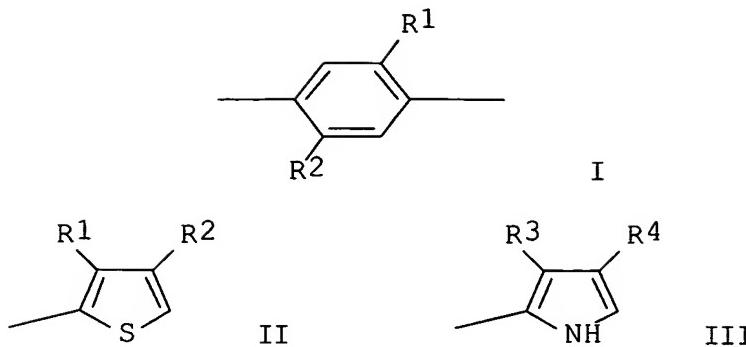
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JP 2007169633 A 20070705 JP 2006-337878
200612
15

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PRAI JP 2002-375654 A 20021225 <--
JP 2004-562867 A3 20031215 <--
WO 2003-JP16029 W 20031215 <--

GI



AB The present invention relates to novel **electroluminescent** high-mol. compds. $[(B)mA(B')n]x$, wherein A = a group I; B, B' = a group II or III; and R1, R2, R3, R4 = H, halogen atom, O, S, or a nitrogen-contg. org. group. The high-mol. compds. permit film formation through polymn. by electrolysis and make it possible through the replacement of substituents to emit various colors in dependence on the elec. field applied, which facilitates the prodn. of **light emitting** devices capable of multicolor display. Thus, a dot shape ITO-patterned glass substrate was dipped in an electrolytic soln. contg. 2,2'-(1,4-phenylene)bisthiophene and ammonium perchlorate and electrochem. polymd. using a platinum **electrode** to give a **light emitting** layer-coated ITO/glass, each calcium and aluminum were vacuum deposited thereon to give an **electroluminescent** device with good visible light transmittance.

IT 717867-60-2P

(high-mol. compds. for **electroluminescents** and
light emitting devices)

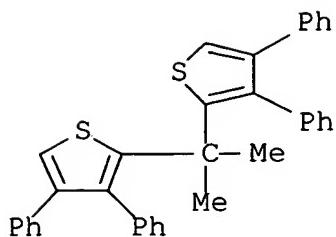
RN 717867-60-2 HCA

CN Thiophene, 2,2'-(1-methylethylidene)bis[3,4-diphenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 717867-59-9

CMF C35 H28 S2



IC ICM C08G061-12
 ICS H05B033-14; C09K011-06
 CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 38, 74
 ST high mol compd **electroluminescent light emitting** device; phenylenebisthiophene electrochem polymn **electroluminescent light emitting** device
 prepn
 IT Polymerization
 (electrochem.; high-mol. compds. for **electroluminescents** and **light emitting** devices)
 IT Luminescent substances
 (**electroluminescent**; high-mol. compds. for **electroluminescents** and **light emitting** devices)
 IT **Electroluminescent** devices
 (high-mol. compds. for **electroluminescents** and **light emitting** devices)
 IT Conducting polymers
 (polythiophenes; high-mol. compds. for **electroluminescents** and **light emitting** devices)
 IT 109612-00-2P **717867-60-2P**
 (high-mol. compds. for **electroluminescents** and **light emitting** devices)

L40 ANSWER 3 OF 21 HCA COPYRIGHT 2007 ACS on STN

AN 139:125045 HCA Full-text

TI Semiconductive rubber printer rolls showing stable resistivity against environmental fluctuation

IN Kawaguchi, Toshiyuki; Takahashi, Masayuki

PA Shin-Etsu Polymer Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003202014	A	20030718	JP 2002-727	200201 07

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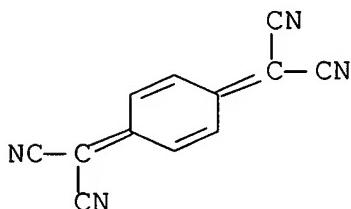
PRAI JP 2002-727 20020107 <--

AB The rolls have surface layers comprising polyurethanes and cond.-imparting substances and satisfy $(RS_0 - RV_0) > (RS_0 - RV_1)$ [RS₀, RV₀ = initial surface resistivity (Ω) at 500 V; RV₁ = surface resistivity after pulse electrification]. The cond.-imparting substances may be solvent-sol. conducting polymers.

IT 1518-16-7, TCNQ
(doped with polypyrroles; semiconductive rubber printer rolls showing stable resistivity against environmental fluctuation)

RN 1518-16-7 HCA

CN Propanedinitrile, 2,2'-(2,5-cyclohexadiene-1,4-diylidene)bis- (CA INDEX NAME)



IT 95831-29-1, Poly(3-phenylthiophene)
(sulfonated dendrimer-doped, surface layers; semiconductive rubber printer rolls showing stable resistivity against environmental fluctuation)

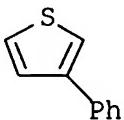
RN 95831-29-1 HCA

CN Thiophene, 3-phenyl-, homopolymer (CA INDEX NAME)

CM 1

CRN 2404-87-7

CMF C10 H8 S



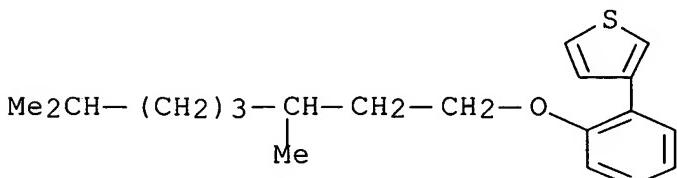
IC ICM F16C013-00
ICS C08L075-04; C08L101-12; G03G015-00; G03G015-08; G03G015-16
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 39
IT **1518-16-7**, TCNQ
(doped with polypyrroles; semiconductive rubber printer rolls showing stable resistivity against environmental fluctuation)
IT **95831-29-1**, Poly(3-phenylthiophene)
(sulfonated dendrimer-doped, surface layers; semiconductive rubber printer rolls showing stable resistivity against environmental fluctuation)

L40 ANSWER 4 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 139:101481 HCA Full-text
TI Synthesis and electro-optical properties of polythiophene derivatives for **electroluminescence** display
AU Jin, S. H.; Yoo, B. U.; Kang, S. Y.; Gal, Y. S.; Moon, D. K.
CS Department of Chemistry Education and Chemistry Institute for Functional Materials, Pusan National University, Pusan, 609-735, S. Korea
SO Optical Materials (Amsterdam, Netherlands) (2003), 21(1-3), 153-157
CODEN: OMATET; ISSN: 0925-3467
PB Elsevier Science B.V.
DT Journal
LA English
AB A new series of **light emitting** polymers composed of thiophene repeating units were synthesized and characterized by oxidative polymn. Introduction of alkyl-oxy-Ph substituent into the 3-position of the thiophene unit not only influences solv. but also controls the emission colors and electro-optical properties. Chem. structures of the resulting polymers were confirmed by UV-visible, 1H- and 13C-NMR spectra. The resulting polymers were sol. in common org. solvents and could be spin-cast onto ITO glass substrate to obtain optical thin films without defects. The turn-on voltage of the polymers were about 4.5-6.5 V and emitted a red color on forward bias.
IT **560869-33-2P** **560869-40-1P**
(polythiophene derivs. for **electroluminescence** display)

RN 560869-33-2 HCA
CN Thiophene, 3-[2-[(3,7-dimethyloctyl)oxy]phenyl]-, homopolymer (9CI)
(CA INDEX NAME)

CM 1

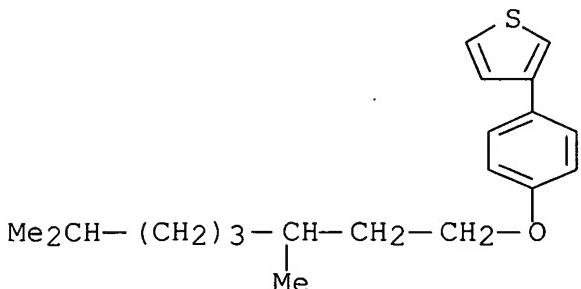
CRN 560869-32-1
CMF C20 H28 O S



RN 560869-40-1 HCA
CN Thiophene, 3-[4-[(3,7-dimethyloctyl)oxy]phenyl]-, homopolymer (9CI)
(CA INDEX NAME)

CM 1

CRN 560869-39-8
CMF C20 H28 O S



CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 37, 73, 76
ST polythiophene photoluminescence **electroluminescence**
light emitting diode
IT **Electroluminescent** devices
(displays; polythiophene derivs. for **electroluminescence**
display)

IT Luminescent screens
(**electroluminescent**; polythiophene derivs. for
electroluminescence display)

IT Band gap
Luminescence
Optical absorption
Thermal stability
(polythiophene derivs. for **electroluminescence** display)

IT **Conducting** polymers
(polythiophenes; polythiophene derivs. for
electroluminescence display)

IT 50926-11-9, ITO
(**electrode**, for **electroluminescent** displays
prepn.; polythiophene derivs. for **electroluminescence**
display)

IT 7429-90-5, Aluminum, uses
(for **electroluminescent** displays prepn.; polythiophene
derivs. for **electroluminescence** display)

IT 7705-08-0, Iron trichloride, uses
(polymn. catalyst, oxidative coupling; polythiophene derivs. for
electroluminescence display)

IT **560869-33-2P 560869-40-1P**
(polythiophene derivs. for **electroluminescence** display)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 5 OF 21 HCA COPYRIGHT 2007 ACS on STN

AN 138:98008 HCA Full-text

TI **Light-emitting** devices and methods of
manufacturing the devices involving simplified formation of a
laminate structure of organic films deposited from solutions in
protic and aprotic solvents

IN Ogino, Kiyofumi; Shibata, Noriko

PA Semiconductor Energy Laboratory Co., Ltd., Japan

SO U.S. Pat. Appl. Publ., 26 pp.
CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI US 2003006699	A1	20030109	US 2002-177752	200206
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US 6887392	B2	20050503		

JP 2003007461

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US 2004-940011

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US 2002-177752

A3

20020624 <--

AB Methods of manufg. **light-emitting** devices are discussed which entail forming a 2nd org. compd. layer on a 1st org. compd. layer; forming a 1st **conductive** film on the 2nd org. compd. layer; etching a portion of the 2nd org. compd. layer by a wet etching, where the portion of the 2nd org. compd. layer does not overlap the 1st **conductive** film; forming a 3rd org. compd. layer on the 1st org. compd. layer; forming a 2nd **conductive** film on the 3rd org. compd. layer; etching a portion of the 1st org. compd. layer by a dry etching, where the portion of the 1st org. compd. layer does not overlap the 1st and 2nd **conductive** films, where the 1st org. compd. layer is formed by applying a soln. including a protic solvent, where each of the 2nd and 3rd org. compd. layers is formed by applying a soln. including an aprotic solvent. **Light-emitting** devices are described which comprise a 1st **light-emitting** element including a 1st **anode**; a 1st org. compd. layer in contact with the 1st **anode**; a 2nd org. compd. layer in contact with the 1st org. compd. layer; a 1st **cathode** in contact with the 2nd org. compd. layer; a 2nd **light-emitting** element including a 2nd **anode**; a 3rd org. compd. layer in contact with the 2nd **anode**; a 4rt org. compd. layer in contact with the 3rd org. compd. layer; a 2nd **cathode** in contact with the 4th org. compd. layer; a 3rd **light-emitting** element including a 3rd **anode**; a 5th org. compd. layer in contact with the 3rd **anode**; a 6th org. compd. layer in contact with the 5th org. compd. layer; a 3rd **cathode** in contact with the 6th org. compd. layer; a **conductive** film in contact with the 1st, 2nd and 3rd **cathodes**.

IT 141807-85-4, Poly[3-(4-octylphenyl)thiophene]

159838-09-2, Poly[3-(4-octylphenyl)-2,2'-bithiophene]

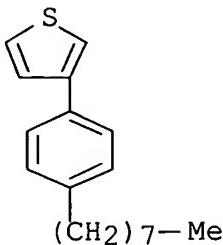
(**light-emitting** devices and methods of
manufg. the devices involving simplified formation of laminate
structure of org. films deposited from solns. in protic and
aprotic solvents)

RN 141807-85-4 HCA

CN Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CRN 141807-84-3

CMF C18 H24 S



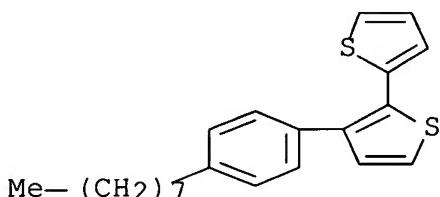
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



IC ICM H05B033-00

INCL 313506000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38, 74, 76

ST **electroluminescent** device fabrication org film laminate protic aprotic solvent; **OLED** manuf film deposition protic aprotic solvent

IT Solvents
(aprotic; **light-emitting** devices and methods
of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)

IT Polyacetylenes, uses
(deriv.; **light-emitting** devices and methods

of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)

IT **Electroluminescent** devices

(displays; **light-emitting** devices and methods

of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)

IT Etching

(dry; **light-emitting** devices and methods of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents and use of)

IT Luminescent screens

(**electroluminescent**; **light-emitting**

devices and methods of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)

IT **Electroluminescent** devices

Electronic device fabrication

(**light-emitting** devices and methods of

manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)

IT Etching

(**light-emitting** devices and methods of

manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents and use of)

IT Etching

(plasma, oxygen; **light-emitting** devices and

methods of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents and use of)

IT Solvents

(protic; **light-emitting** devices and methods

of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)

IT 50926-11-9, Indium tin oxide

(anode; **light-emitting** devices and

methods of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)

IT 67-66-3, Chloroform, uses 67-68-5, Dimethyl sulfoxide, uses
71-43-2, Benzene, uses 75-09-2, Dichloromethane, uses 96-48-0,
 γ -Butyrolactone 100-66-3, Anisole, uses 108-88-3, Toluene,

- uses 108-90-7, Chlorobenzene, uses 108-94-1, Cyclohexanone, uses 109-99-9, Tetrahydrofuran, uses 110-82-7, Cyclohexane, uses 111-76-2, Butylcellosolve 119-64-2, Tetralin 123-91-1, Dioxane, uses 872-50-4, N-Methyl-2-pyrrolidone, uses 1330-20-7, Xylene, uses 25321-22-6, Dichlorobenzene
(aprotic solvent, etchant; **light-emitting**
devices and methods of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)
- IT 7429-90-5, Aluminum, uses
(auxiliary **electrode**; **light-emitting**
devices and methods of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)
- IT 95270-88-5D, Polyfluorene, dialkyl deriv.
(blue-**emitting** layer; **light-emitting**
devices and methods of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)
- IT 12798-95-7
(**cathodes**; **light-emitting** devices
and methods of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)
- IT 26009-24-5D, Poly1,4-phenylene vinylene, dialkoxyphenyl derivs.
(green-**emitting** layer; **light-emitting**
devices and methods of manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)
- IT 9033-83-4D, Polyphenylene, alkyl derivs. 25067-58-7D,
Polyacetylene, deriv. 25190-62-9D, Poly(1,4-phenylene), deriv.
25190-62-9D, Poly(1,4-phenylene), dialkoxy deriv. 25233-30-1,
Polyaniline 25233-34-5D, Polythiophene, alkyl deriv.
25233-34-5D, Polythiophene, deriv. 26009-24-5D,
Poly(1,4-phenylene-1,2-ethenediyl), deriv. 95270-88-5D,
Polyfluorene, deriv. 98705-03-4, Polyhexylphenylacetylene
104934-50-1, Poly(3-hexylthiophene) 120659-35-0,
Poly(3-cyclohexylthiophene) 126213-51-2, PEDOT 138184-36-8
141807-85-4, Poly[3-(4-octylphenyl)thiophene] 157673-32-0
159838-09-2, Poly[3-(4-octylphenyl)-2,2'-bithiophene]
163045-79-2, Poly(3-cyclohexyl-4-methylthiophene) 195456-48-5,
Poly(9,9-dioctyl-9H-fluorene-2,7-diyl) 220613-28-5 482373-10-4
(**light-emitting** devices and methods of
manufg. the devices involving simplified formation of laminate structure of org. films deposited from solns. in protic and aprotic solvents)
- IT 7782-44-7, Oxygen, uses

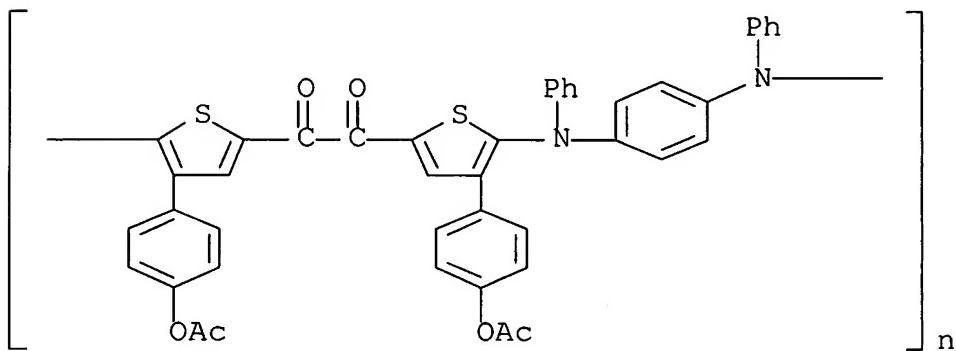
oxetane-functionalized compds. as **hole-transporting**, and/or electron-transporting/emitter layers.

IT **403829-83-4P**

(crosslinkable oxetane-functionalized org. semiconductor and/or luminescent materials and their prepn. and org. light-emitting diodes using them)

RN 403829-83-4 HCA

CN Poly[[3-[4-(acetyloxy)phenyl]-2,5-thiophenediyl](1,2-dioxo-1,2-ethanediyl)[4-[4-(acetyloxy)phenyl]-2,5-thiophenediyl](phenylimino)-1,4-phenylene(phenylimino)] (9CI) (CA INDEX NAME)

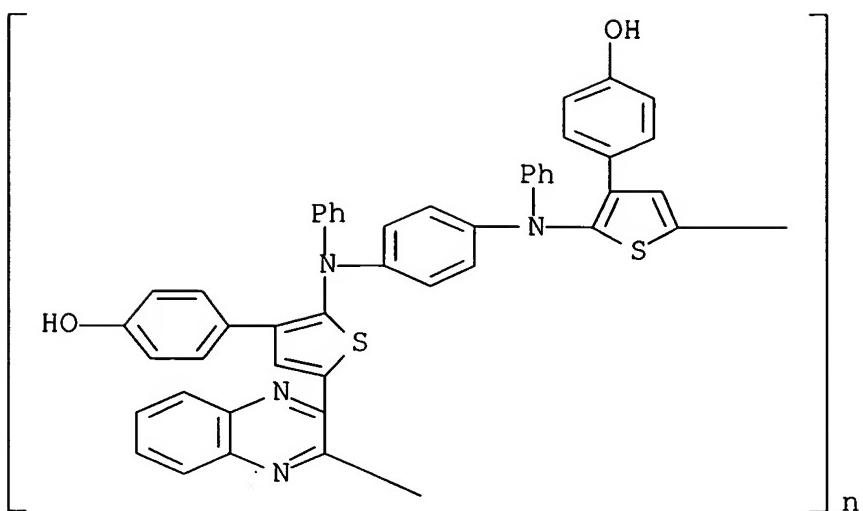


IT **403829-66-3P 403829-70-9P 403829-74-3P**

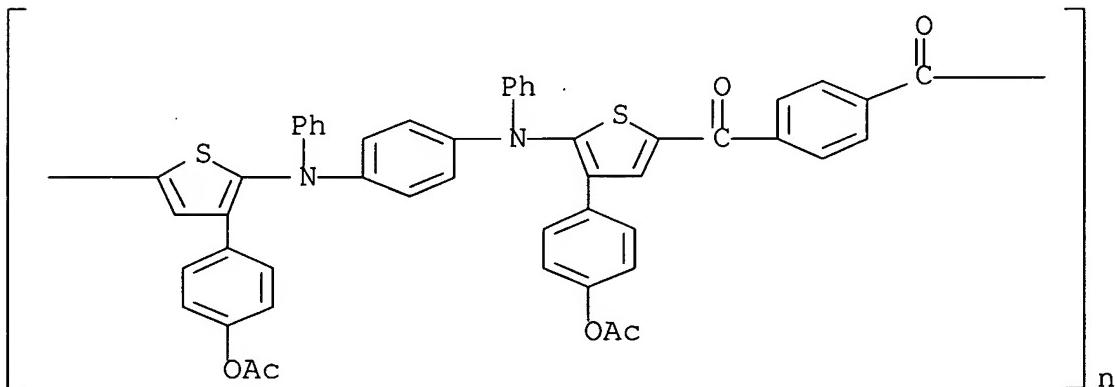
(crosslinkable oxetane-functionalized org. semiconductor and/or luminescent materials and their prepn. and org. light-emitting diodes using them)

RN 403829-66-3 HCA

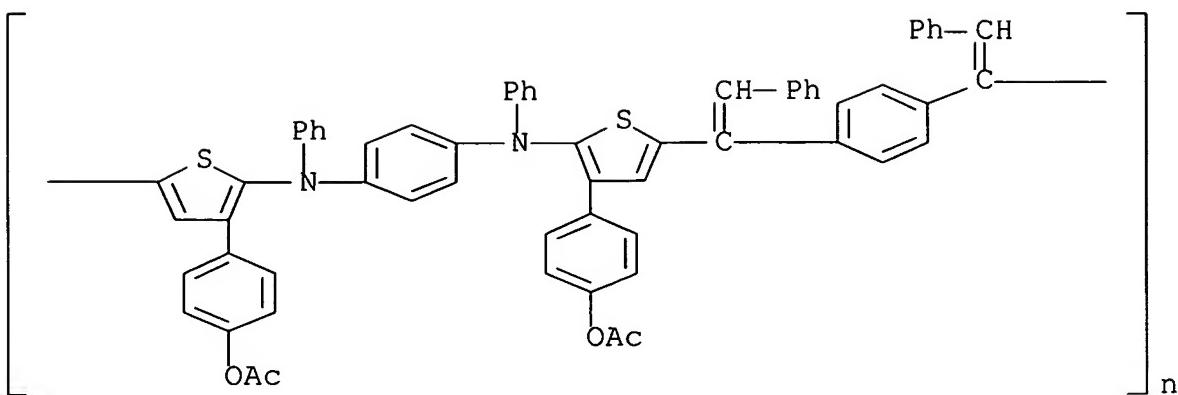
CN Poly[2,3-quinoxalinediyl[4-(4-hydroxyphenyl)-2,5-thiophenediyl](phenylimino)-1,4-phenylene(phenylimino)[3-(4-hydroxyphenyl)-2,5-thiophenediyl]] (9CI) (CA INDEX NAME)



RN 403829-70-9 HCA
 CN Poly[[4-[4-(acetyloxy)phenyl]-2,5-thiophenediyl](phenylimino)-1,4-phenylene(phenylimino)[3-[4-(acetyloxy)phenyl]-2,5-thiophenediyl]carbonyl-1,4-phenylenecarbonyl] (9CI) (CA INDEX NAME)



RN 403829-74-3 HCA
 CN Poly[[4-[4-(acetyloxy)phenyl]-2,5-thiophenediyl](phenylimino)-1,4-phenylene(phenylimino)[3-[4-(acetyloxy)phenyl]-2,5-thiophenediyl](phenylethenylidene)-1,4-phenylene(phenylethenylidene)] (9CI) (CA INDEX NAME)



IC ICM H01L051-20

ICS H01L051-30; C07D305-06; C07D409-14; C07D409-12

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 27, 38, 76

IT 5381-54-4P, 1,1-Bis(chloromethyl)-1-(hydroxymethyl)propane

65448-20-6P 403829-41-4P 403829-43-6P 403829-45-8P

403829-47-0P 403829-48-1P 403829-50-5P 403829-52-7P

403829-54-9P 403829-58-3P 403829-60-7P 403829-62-9P

403829-64-1P 403829-65-2P 403829-68-5P 403829-72-1P

403829-78-7P 403829-80-1P **403829-83-4P**

(crosslinkable oxetane-functionalized org. semiconductor and/or luminescent materials and their prepn. and org. light-emitting diodes using them)

IT 2177-22-2P 3047-32-3P, 3-Ethyl-3-hydroxymethyloxetane

18933-99-8P 142627-97-2P **403829-66-3P**

403829-70-9P 403829-74-3P 403829-75-4P

403829-81-2P

(crosslinkable oxetane-functionalized org. semiconductor and/or luminescent materials and their prepn. and org. light-emitting diodes using them)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 7 OF 21 HCA COPYRIGHT 2007 ACS on STN

AN 136:6473 HCA Full-text

TI Studies on the synthesis of poly(3-octylthiophene-co-3-(4-fluorophenyl)thiophene) and its opto-electrical characteristics as a red emitting material

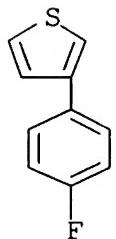
AU Shin, Seon-Ho; Jeong, Ae-Young; Kim, Joo Hyun; Lee, Hoosung; Kim, Dong-Pyo

CS FPD R&D Center, Eliatech Co., Ltd., Seoul, S. Korea

SO Kongop Hwahak (2001), 12(3), 348-351
CODEN: KOHWE9; ISSN: 1225-0112
PB Korean Society of Industrial and Engineering Chemistry
DT Journal
LA Korean
AB In an attempt to improve the electroluminescence (EL) efficiency of a copolymer of 3-octylthiophene (OT) and 3-(4-fluorophenyl)thiophene (FPT) was synthesized. The elec. and optical characteristics of the copolymer was investigated by measuring the photoluminescence (PL) and EL spectra as well as the I-V-L curves. The λ_{max} (651 nm) in the PL spectrum of 2:1 OT-FPT copolymer [P(OT/FPT) (2:1)] film was red-shifted by 21 nm compared with that of a soln. in chloroform which is smaller by 12 nm than the red-shift in poly(3-octylthiophene) (POT). This indicates that the excimer formation is less prominent in P(OT/FPT) (2:1) than in POT. It is believed that the color purity was improved due to the high **hole transport** capability of polythiophene and the electron withdrawing characteristics of 4-fluorophenyl group. This leads to the efficient injection of electrons and eventually to the lower operating voltage, i.e. 6 V, and improvement of the intensity of an EL device using P(OT/FPT) (2:1).
IT 353298-54-1P, 3-(4-Fluorophenyl)thiophene-3-octylthiophene copolymer
(prepn. and electrooptical properties as red-emitting material)
RN 353298-54-1 HCA
CN Thiophene, 3-(4-fluorophenyl)-, polymer with 3-octylthiophene (9CI)
(CA INDEX NAME)

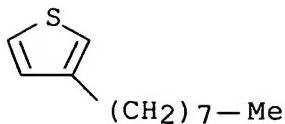
CM 1

CRN 119492-73-8
CMF C10 H7 F S



CM 2

CRN 65016-62-8
CMF C12 H20 S



- CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 72, 73
- IT Electric current-potential relationship
Hole transport
Luminescence
Luminescence, electroluminescence
(prepn. and electrooptical properties of thiophene deriv.-based fluoropolymers)
- IT **353298-54-1P**, 3-(4-Fluorophenyl)thiophene-3-octylthiophene copolymer
(prepn. and electrooptical properties as red-emitting material)
- L40 ANSWER 8 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 135:202204 HCA Full-text
TI Determination of the emission zone in a single-layer polymer **light-emitting** diode through optical measurements
AU Granlund, Thomas; Pettersson, Leif A. A.; Inganäs, Olle
CS Laboratory of Applied Physics, Department of Physics and Measurement Technology, Linköping University, S-581 83, Swed.
SO Journal of Applied Physics (2001), 89(11, Pt. 1), 5897-5902
CODEN: JAPIAU; ISSN: 0021-8979
PB American Institute of Physics
DT Journal
LA English
AB The authors study the emission zone in a single-layer polymer **light-emitting** diode. The emission zone is found by studying the angular distribution of the **electroluminescence**. The emission is modeled by accounting for optical interference. The authors account for birefringence of the **anode** layer in the model. The active polymer was, however, found to be isotropic. The **anode** consists of a single-layer of the **conducting** polymer complex poly(3,4-ethylenedioxythiophene) and poly(styrene sulfonate) (PEDOT-PSS), with enhanced **cond.** Plain aluminum was used as a **cathode**. By using only PEDOT-PSS the authors avoid having a thin metal layer or indium-tin-oxide as the **anode** in the path of the escaping light. The active

material is a substituted polythiophene with excellent film forming properties. A comparison between the exptl. and calcd. angular distribution of **light emission** from a single-layered polymer **light-emitting** diode was shown to be in good agreement for the spectral region studied. By assuming a distribution of the emission zone, the authors deduce the position as well as the width of the zone.

IT 200574-66-9

(active layer; detn. of emission zone in single-layer polymer **light-emitting** diode through optical measurements)

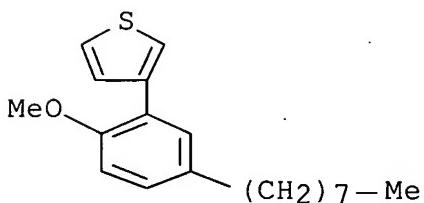
RN 200574-66-9 HCA

CN Thiophene, 3-(2-methoxy-5-octylphenyl)-, homopolymer (CA INDEX NAME)

CM 1

CRN 200574-65-8

CMF C19 H26 O S



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties).

Section cross-reference(s): 38, 76

ST single layer polymer **light emitting** diode
electroluminescence polythiophene deriv

IT Luminescence, **electroluminescence**

(detn. of emission zone in single-layer polymer **light-emitting** diode through optical measurements)

IT Interference

(detn. of emission zone in single-layer polymer **light-emitting** diode through optical measurements accounting for)

IT Birefringence

Glass substrates

(model of **electroluminescence** in a single-layer polymer **light-emitting** diode accounting for birefringence of anisotropic PEDOT-PULSES layer and optically thick glass substrate)

IT Electric current-potential relationship
(of single-layer polymer **light-emitting**
diodes)

IT **Electroluminescent** devices
(polymer; detn. of emission zone in single-layer polymer
light-emitting diode through optical
measurements)

IT 200574-66-9
(active layer; detn. of emission zone in single-layer polymer
light-emitting diode through optical
measurements)

IT 155090-83-8
(**anode**; detn. of emission zone in single-layer polymer
light-emitting diode through optical
measurements)

IT 7429-90-5, Aluminum, uses
(**cathode**; detn. of emission zone in single-layer
polymer **light-emitting** diode through optical
measurements)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 9 OF 21 HCA COPYRIGHT 2007 ACS on STN

AN 135:123055 HCA Full-text

TI Reversible thermochromism and luminescence in copolymers of
3-alkylthiophene

AU Lee, S. J.; Kim, J. H.; Lee, H.

CS Department of Chemistry, Sogang University, Mapo, Gu, Seoul, S.
Korea

SO Synthetic Metals (2001), 121(1-3), 1691-1692

CODEN: SYMEDZ; ISSN: 0379-6779

PB Elsevier Science S.A.

DT Journal

LA English

AB The copolymers of 3-tetradecylthiophene and 3-p-
trifluoromethylphenylthiophene with various copolymer ratios were
synthesized. The electronic absorption, PL, and EL spectra showed
reversible thermal behavior. Spectral changes up to ca. 70°C was
explained in terms of the thermal motions of the side chains leading
to extension of π-conjugation to the Ph ring. Spectral changes above
ca. 70°C was interpreted in terms of interruption of π-conjugation by
the onset of the thermal motions of the main chain above Tg. The
λmax of the electronic absorption spectra showed blue shift with the
increase in the mole fraction of TFT units. This is because the
trifluoromethylphenyl group is more electron-withdrawing than the
alkyl (tetradecyl) group. The copolymers have better quantum

efficiency than P3AT because the **hole-** and electron-**injection** abilities are balanced by lowering the HOMO and LUMO levels.

IT **351222-82-7**

(reversible thermochromism and luminescence in alkylthiophene copolymers)

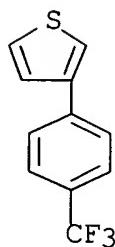
RN 351222-82-7 HCA

CN Thiophene, 3-tetradecyl-, polymer with 3-[4-(trifluoromethyl)phenyl]thiophene (9CI) (CA INDEX NAME)

CM 1

CRN 122159-17-5

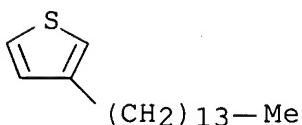
CMF C11 H7 F3 S



CM 2

CRN 110851-66-6

CMF C18 H32 S



CC 36-5 (Physical Properties of Synthetic High Polymers)

IT **351222-82-7**

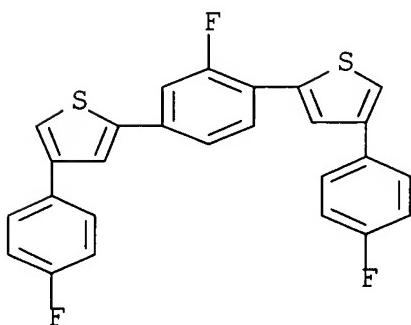
(reversible thermochromism and luminescence in alkylthiophene copolymers)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 10 OF 21 HCA COPYRIGHT 2007 ACS on STN

AN 133:151043 HCA Full-text

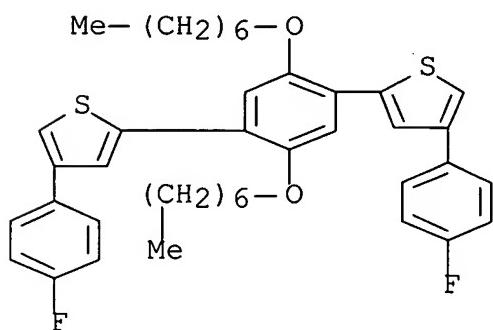
TI Photoluminescence of substituted phenylene-thienyl based polymers
 AU Sarker, Haripada; Ong, Ivan W.; Searson, Peter C.; Poehler, Theodore O.
 CS Department of Materials Science and Engineering, The Johns Hopkins University, Baltimore, MD, 21218-2689, USA
 SO Synthetic Metals (2000), 113(1-2), 151-154
 CODEN: SYMEDZ; ISSN: 0379-6779
 PB Elsevier Science S.A.
 DT Journal
 LA English
 AB A series of four phenylene-thienyl based **conducting** polymers were synthesized with push-pull functionalities incorporated in the phenylene and thienyl moieties to control the solv. and emission properties. The monomers were prepd. from 3-(4-fluorophenyl)-thiophene with butyllithium, then with the resp. bromo-alkoxyphenylene borane in the presence of ZnCl₂ and Pd(PPh₃)₄. Electrochem. polymn. of 1,4-Bis(2-thienyl)-2-fluorophenylene produced the corresponding homopolymer on ITO glass **electrode** while chem. oxidative polymn. was used to obtain all other polymers. Exptl. **light-emitting** device structures were constructed on ITO and aluminum substrates. The emission wavelength could be tuned using mixts. of the polymers in the assembly.
 IT 259176-84-6P 259176-85-7P 259176-86-8P
 (prepn. of monomers and polymn. to obtain alkoxy- and fluoro-substituted phenylene-thienyl **conducting** polymers with tunable luminescence for LEDs)
 RN 259176-84-6 HCA
 CN Thiophene, 2,2'-(2-fluoro-1,4-phenylene)bis[4-(4-fluorophenyl)-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 259176-81-3
 CMF C26 H15 F3 S2



RN 259176-85-7 HCA
CN Thiophene, 2,2'-[2,5-bis(heptyloxy)-1,4-phenylene]bis[4-(4-fluorophenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

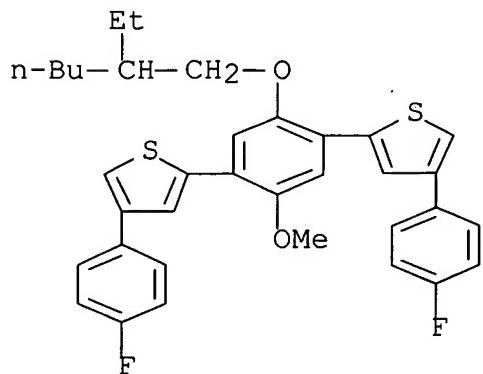
CRN 259176-82-4
CMF C40 H44 F2 O2 S2



RN 259176-86-8 HCA
CN Thiophene, 2,2'-[2-[(2-ethylhexyl)oxy]-5-methoxy-1,4-phenylene]bis[4-(4-fluorophenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 259176-83-5
CMF C35 H34 F2 O2 S2



- CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73
- ST phenylene thietyl monomer prepn polymn luminescence solv;
conducting polymer phenylene thietyl push pull
functionality; polythiophene phenylene alkoxy substituent solv
luminescence
- IT Polymerization
(electrochem.; prepn. of monomers and polymn. to obtain alkoxy-
and fluoro-substituted phenylene-thietyl **conducting**
polymers with tunable luminescence for LEDs)
- IT Polymerization
(oxidative; prepn. of monomers and polymn. to obtain alkoxy- and
fluoro-substituted phenylene-thietyl **conducting**
polymers with tunable luminescence for LEDs)
- IT Fluoropolymers, preparation
(polythiophene-polyphenyls; prepn. of monomers and polymn. to
obtain alkoxy- and fluoro-substituted phenylene-thietyl
conducting polymers with tunable luminescence for LEDs)
- IT Polyphenyls
(polythiophene; prepn. of monomers and polymn. to obtain alkoxy-
and fluoro-substituted phenylene-thietyl **conducting**
polymers with tunable luminescence for LEDs)
- IT Polymers, preparation
(polythiophenes, polyphenyl; prepn. of monomers and polymn. to
obtain alkoxy- and fluoro-substituted phenylene-thietyl
conducting polymers with tunable luminescence for LEDs)
- IT **Conducting** polymers
Luminescence
Luminescence, **electroluminescence**
(prep. of monomers and polymn. to obtain alkoxy- and
fluoro-substituted phenylene-thietyl **conducting**
polymers with tunable luminescence for LEDs)
- IT 259176-81-3P 259176-82-4P 259176-83-5P
(monomer; prepn. of monomers and polymn. to obtain alkoxy- and
fluoro-substituted phenylene-thietyl **conducting**
polymers with tunable luminescence for LEDs)
- IT 218789-61-8
(monomer; prepn. of monomers and polymn. to obtain alkoxy- and
fluoro-substituted phenylene-thietyl **conducting**
polymers with tunable luminescence for LEDs)
- IT 218789-69-6P, 1,4-Bis(2-thienyl)-2-fluorophenylene homopolymer
259176-84-6P 259176-85-7P 259176-86-8P
(prep. of monomers and polymn. to obtain alkoxy- and
fluoro-substituted phenylene-thietyl **conducting**
polymers with tunable luminescence for LEDs)
- IT 7429-90-5, Aluminum, uses 50926-11-9, Indium tin oxide

(substrate; prepn. of monomers and polymn. to obtain alkoxy- and fluoro-substituted phenylene-thienyl **conducting** polymers with tunable luminescence for LEDs)

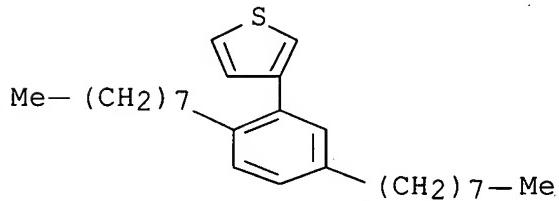
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 11 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 133:142401 HCA Full-text
TI Optical and electrical properties of substituted
2,5-diphenyl-1,3,4-oxadiazoles
AU Kaminorz, Y.; Schulz, B.; Brehmer, L.
CS Institute of Physics, Physics of Condensed Matter, University of
Potsdam, Potsdam, 14469, Germany
SO Synthetic Metals (2000), 111-112, 75-78
CODEN: SYMEDZ; ISSN: 0379-6779
PB Elsevier Science S.A.
DT Journal
LA English
AB New substituted 2,5-diphenyl-1,3,4-oxadiazoles are reported as
luminescent materials in light emitting diodes (LEDs). The studied
new oxadiazoles show efficient blue and green emission in single
layer devices. The combination with a **hole transporting** and red
emitting polythiophene led to a white emission with higher quantum
efficiency (QE).
IT 189283-30-5, Poly(2,5-dioctylphenylthiophene)
(optical and elec. properties of substituted 2,5-diphenyl-1,3,4-
oxadiazoles)
RN 189283-30-5 HCA
CN Thiophene, 3-(2,5-dioctylphenyl)-, homopolymer (CA INDEX NAME)

CM 1

CRN 189283-29-2

CMF C26 H40 S



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

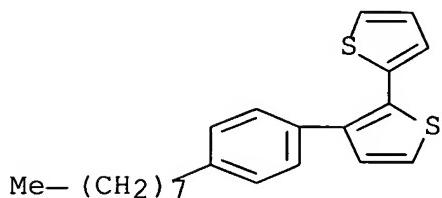
Section cross-reference(s): 76

IT 725-12-2D, 2,5-Diphenyl-1,3,4-oxadiazole, derivs. 1679-98-7
1874-35-7 70366-88-0 **189283-30-5**, Poly(2,5-
dioctylphenylthiophene) 191328-59-3 191328-61-7 216483-21-5
216483-23-7 216483-24-8 216483-25-9 286433-25-8 286433-26-9
286433-27-0
(optical and elec. properties of substituted 2,5-diphenyl-1,3,4-
oxadiazoles)

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 12 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 133:105581 HCA Full-text
TI Ultrafast photogeneration of inter-chain charge pairs in
polythiophene films
AU Ruseckas, A.; Theander, M.; Andersson, M. R.; Svensson, M.; Prato,
M.; Inganäs, O.; Sundstrom, V.
CS Box 124, Department of Chemical Physics, Lund University, Lund,
S-22100, Swed.
SO Chemical Physics Letters (2000), 322(1,2), 136-142
CODEN: CHPLBC; ISSN: 0009-2614
PB Elsevier Science B.V.
DT Journal
LA English
AB Photoexcitation dynamics in films of polythiophenes with different
side groups were studied by transient absorption spectroscopy using
80 fs pulses. The polymers are poly[3-(2,5-dioctyl-phenyl)-
thiophene] (PDOPT), a partially cryst. polymer with interchain
distance of about 10 Å and poly[3-(4-octyl-phenyl)-2,2'- bithiophene]
(PTOPT) an amorphous polymer with interchain distance of 3.8-4 Å.
Inter-chain charge pairs (CP) are generated with .apprx.20%
efficiency in PTOPT within 100 fs after photoexcitation. Two
mechanisms for inter-chain charge sepn. are proposed: electron or
hole transfer from an initially excited intra-chain singlet state or
optical excitation of mixed exciton-charge transfer states, which
quickly evolve to inter-chain CPs.
IT **159838-09-2**, Poly[3-(4-octyl-phenyl)-2,2'-bithiophene]
189283-30-5, Poly[3-(2,5-dioctyl-phenyl)-thiophene]
(ultrafast photogeneration of inter-chain charge pairs in
poly[(dioctylphenyl)thiophene] and poly[(octylphenyl)bithiophene]
as function of inter-chain distance)
RN 159838-09-2 HCA
CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX
NAME)

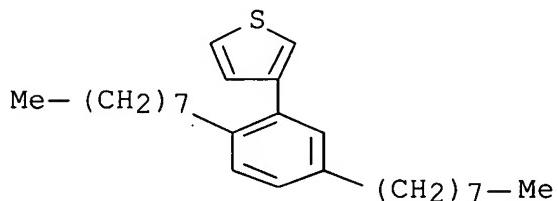
CRN 159838-08-1
CMF C22 H26 S2



RN 189283-30-5 HCA
CN Thiophene, 3-(2,5-dioctylphenyl)-, homopolymer (CA INDEX NAME)

CM 1

CRN 189283-29-2
CMF C26 H40 S



CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 74
IT 159838-09-2, Poly[3-(4-octyl-phenyl)-2,2'-bithiophene]
189283-30-5, Poly[3-(2,5-dioctyl-phenyl)-thiophene]
(ultrafast photogeneration of inter-chain charge pairs in
poly[(dioctylphenyl)thiophene] and poly[(octylphenyl)bithiophene]
as function of inter-chain distance)
RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 13 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 132:12659 HCA Full-text
TI **Light-Emitting** Electrochemical Cells from
Oligo(ethylene oxide)-Substituted Polythiophenes: Evidence for in
Situ Doping
AU Johansson, T.; Mammo, W.; Andersson, M. R.; Inganaes, O.
CS Laboratory of Applied Physics Department of Physics and Measurement

Technology (IFM), University of Linkoeping, Linkoeping, S-581 38,
Swed.

SO Chemistry of Materials (1999), 11(11), 3133-3139
CODEN: CMATEX; ISSN: 0897-4756

PB American Chemical Society

DT Journal

LA English

AB **Electroluminescent (EL) and ion-conducting polythiophenes**, poly(3-(2',5'-bis(1'',4'',7''-trioxaoctyl)phenyl)thiophene) (I) and poly(3-(2'',5''-bis(1''',4''',7'''-trioxaoctyl)phenyl)-2,2'-bithiophene) (II) were prep'd. and evaluated for use in **light-emitting** electrochem. cells (LEC). The oligo(ethylene oxide)-substituted polythiophenes mixed with a salt simultaneously act as a **light-emitting** layer and test solid-state electrolyte in LECs. Under an applied bias, p-doping of the **electroluminescent** polymer takes place at the **anode**. At the opposite **electrode** the **cathode** material is reduced. Since the work function of the **electrode** material is less important in an LEC, all-polymer devices, with poly(3,4-ethylenedioxothiophene) as **anode** and **cathode**, can be built. The doping processes were studied by in situ absorption spectroscopy in both sandwich configuration and on planar electrochem. cells.

IT **223655-08-1P**, 3-[2',5'-Bis(1'',4'',7''-trioxaoctyl)phenyl]thiophene homopolymer **223655-11-6P**, 3-[2'',5''-Bis(1''',4''',7'''-trioxaoctyl)phenyl]-2,2'-bithiophene homopolymer
(redox/doping process of oligo(ethylene oxide-phenyl)-substituted polythiophenes as electrolyte and emitter layer in photoelectrochem. cells)

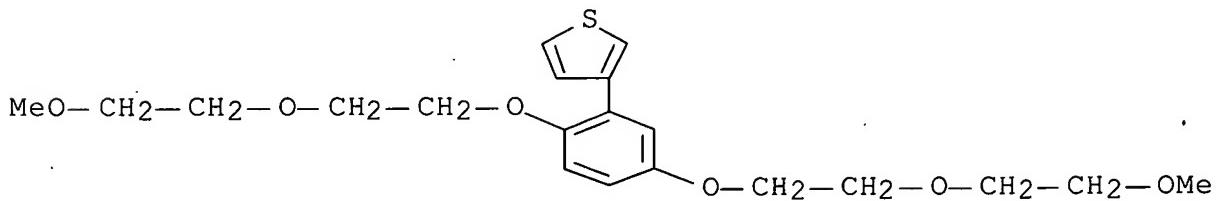
RN 223655-08-1 HCA

CN Thiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 223655-07-0

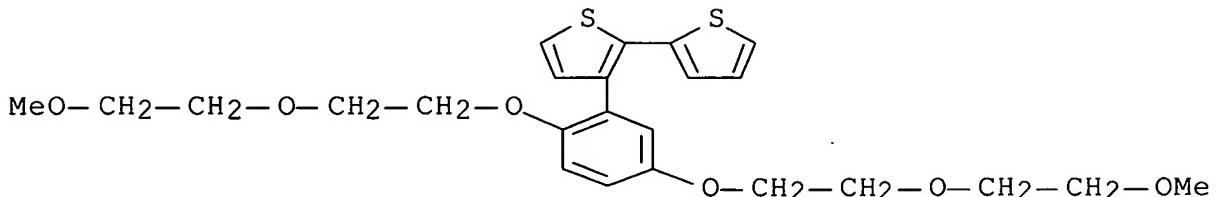
CMF C20 H28 O6 S



RN 223655-11-6 HCA
CN 2,2'-Bithiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer (CA INDEX NAME)

CM 1

CRN 223655-10-5
CMF C24 H30 O6 S2



CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 74
ST polythiophene ethylene oxide substituent prepn
electroluminescence; ionic **cond** ethylene oxide
polythiophene electrolyte; **light emitting**
electrochem cell ethylene oxide polythiophene; photoelectrochem cell
polythiophene oligoethylene oxide emitter
IT **Conducting** polymers
(polythiophenes; redox/doping process of oligo(ethylene
oxide-phenyl)-substituted polythiophenes as electrolyte and
emitter layer in photoelectrochem. cells)
IT Ionic **conductivity**
Luminescence, **electroluminescence**
Photoelectrochemical cells
Work function
(redox/doping process of oligo(ethylene oxide-phenyl)-substituted
polythiophenes as electrolyte and emitter layer in
photoelectrochem. cells)
IT 50926-11-9P, ITO 126213-51-2P, Poly(3,4-ethylene dioxythiophene)
(**electrode**; redox/doping process of oligo(ethylene
oxide-phenyl)-substituted polythiophenes as electrolyte and
emitter layer in photoelectrochem. cells)
IT **223655-08-1P**, 3-[2',5'-Bis(1'',4'',7''-
trioxaoctyl)phenyl]thiophene homopolymer **223655-11-6P**,
3-[2'',5''-Bis(1''',4''',7'''-trioxaoctyl)phenyl]-2,2'-bithiophene
homopolymer
(redox/doping process of oligo(ethylene oxide-phenyl)-substituted
polythiophenes as electrolyte and emitter layer in

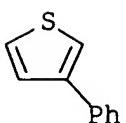
photoelectrochem. cells)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 14 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 126:200345 HCA Full-text
TI Organic electroluminescence device based on an electrodeposited poly(3-substituted thiophene) film
AU Osaka, Tetsuya; Komaba, Shinichi; Fujihana, Kenichiro; Okamoto, Naoki; Momma, Toshiyuki; Kaneko, Norihiko
CS Sch. Sci. Eng., Waseda Univ., Tokyo, 169, Japan
SO Journal of the Electrochemical Society (1997), 144(2), 742-748
CODEN: JESOAN; ISSN: 0013-4651
PB Electrochemical Society
DT Journal
LA English
AB An electrochem. deposited composite film of poly(3-substituted thiophene), and insulating nitrile butadiene rubber (NBR) was used as the emission layer of a polymer electroluminescence (EL) device. The composite film on an indium-tin oxide (ITO) substrate was uniform, and by using this film current leakage was prevented. The device with the composite film as the EL emission layer shows rectification properties, the emitted color depending on the substituent of thiophene units. By coating with NBR after the electrodeposition of a poly(3-substituted thiophene) film, EL characteristics were improved compared with the device with NBR coating performed before electropolymerization. Moreover, by using electropolymerized poly(3-n-octylthiophene) film as a **hole transporting** layer, the luminance of an org. EL device with a poly(N-vinylcarbazole) dip-coating layer was remarkably enhanced. The addn. of the **hole transporting** layer reduced the turn-on bias voltage and increased the emission intensity to 700 cd m⁻².
IT 95831-29-1P, Poly(3-phenylthiophene)
(org. electroluminescence device based on electrodeposited poly(3-substituted thiophene)-insulating nitrile-butadiene rubber composite film)
RN 95831-29-1 HCA
CN Thiophene, 3-phenyl-, homopolymer (CA INDEX NAME)

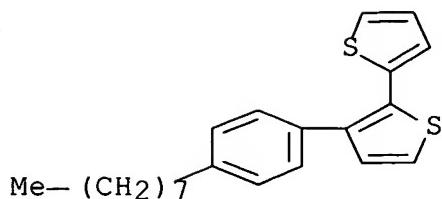
CM 1

CRN 2404-87-7
CMF C10 H8 S



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 73
IT **95831-29-1P**, Poly(3-phenylthiophene) 104934-50-1P,
Poly(3-hexylthiophene) 104934-51-2P, Poly(3-octylthiophene)
110851-63-3P, Poly(3-heptylthiophene)
(org. electroluminescence device based on electrodeposited
poly(3-substituted thiophene)-insulating nitrile-butadiene rubber
composite film)

L40 ANSWER 15 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 124:291490 HCA Full-text
TI Polymeric light-emitting diodes of submicron size - structures and
developments
AU Granstroem, M.; Berggren, M.; Inganaes, O.
CS Laboratory of Applied Physics, Department of Physics (IFM),
Linkoeping University, Linkoping, S-581 83, Swed.
SO Synthetic Metals (1996), 76(1-3), 141-3
CODEN: SYMEDZ; ISSN: 0379-6779
PB Elsevier
DT Journal
LA English
AB Micron- and submicron-sized light-emitting diodes (LEDs) made using
conjugated polymers as electroluminescent layers and contact
materials are presented. Two different routes to make arrays of such
small light sources are developed. The benefits and drawbacks of the
use of the conjugated polymer poly(3,4- ethylenedioxythiophene)
(PEDOT) as **hole injector** in polymer LEDs are also discussed.
IT **159838-09-2**, Poly[3-(4-octylphenyl)-2,2'-bithiophene]
(structure and developments of polymeric light-emitting diodes of
submicron size)
RN 159838-09-2 HCA
CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX
NAME)
CM 1
CRN 159838-08-1
CMF C22 H26 S2



CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 73
 ST polymeric light emitting diode structure; polyethylenedioxothiophene
hole injector LED
 IT 126213-51-2, Poly(3,4-ethylenedioxothiophene)
 (**hole injector**; structure and developments of
 polymeric light-emitting diodes of submicron size)
 IT 159838-09-2, Poly[3-(4-octylphenyl)-2,2'-bithiophene]
 (structure and developments of polymeric light-emitting diodes of
 submicron size)

L40 ANSWER 16 OF 21 HCA COPYRIGHT 2007 ACS on STN
 AN 123:69915 HCA Full-text
 TI Electroluminescent element using polythiophene
 IN Yamamoto, Takakazu; Kanbara, Takaki; Inoue, Teetsushi; Nakaya, Kenji
 PA TDK Corp., Japan
 SO Eur. Pat. Appl., 26 pp.
 CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 643118	A1	19950315	EP 1994-306615	199409 08
				<--	
	EP 643118	B1	19991222		
	R: DE, FR, GB				
	JP 07126616	A	19950516	JP 1994-170312	199406 29
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	JP 3534445	B2	20040607		
	EP 853113	A1	19980715	EP 1998-105161	199409

<--

R: DE, FR, GB
US 5540999

A 19960730

US 1994-303736

199409
09

JP 2004172136

A 20040617

JP 2004-11123

200401
19

JP 3829848
JP 2006287242

B2 20061004
A 20061019

JP 2006-127710

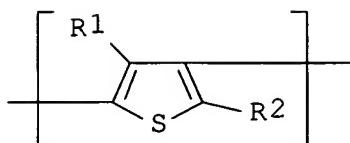
200605
01

PRAI JP 3927221
JP 1993-248629
JP 1994-170312
EP 1994-306615
JP 2004-11123

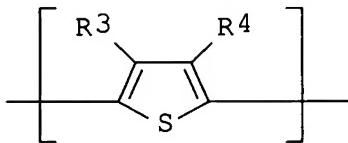
B2 20070606
A 19930909 <--
A 19940629 <--
A3 19940908 <--
A3 20040119

<--

GI



I



II

AB Electroluminescent elements are described which include an org. compd. layer contg. ≥ 1 thiophene polymer having a structural unit described by the general formula I (R1 and R2 may be identical or different and are selected from H, an arom. hydrocarbon group, or an aliph. hydrocarbon group) or a thiophene copolymer including structural units described by the general formula I and units described by the general formula II (R3 and R4, which may be identical or different, = H, arom. hydrocarbon, or aliph. hydrocarbon groups, or R3 and R4 taken together may form a ring), the polymer and the copolymer av. degree of polymn. of 4-100 and being terminated with H or halo atom. as a light-emitting layer or a **hole injection transport** layer.

IT 148231-18-9P

(Electroluminescent elements using polythiophenes)

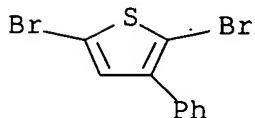
RN 148231-18-9 HCA

CN Thiophene, 2,5-dibromo-3-phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 19698-46-5

CMF C10 H6 Br2 S



IC ICM C09K011-06

ICS H05B033-14

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 82752-31-6P 87827-41-6P, Poly(3,4-dimethylthiophene-2,5-diyl)

148231-18-9P

(Electroluminescent elements using polythiophenes)

L40 ANSWER 17 OF 21 HCA COPYRIGHT 2007 ACS on STN

AN 122:302328 HCA Full-text

TI Micrometer- and nanometer-sized polymeric light-emitting diodes

AU Granstroem, Magnus; Berggren, Magnus; Inganaes, Olle

CS Department Physics Measurement Technology, Linkoeping University, Linkoeping, S-581 83, Swed.

SO Science (Washington, D. C.) (1995), 267(5203), 1479-81

CODEN: SCIEAS; ISSN: 0036-8075

PB American Association for the Advancement of Science

DT Journal

LA English

AB A method for the fabrication of micrometer- and submicrometer-sized polymeric light-emitting diodes is presented. Such diodes have a variety of applications. Light sources of dimensions around 100 nm are required for subwavelength, near-field optical microscopy. Another possible application is patterning on the micrometer and nanometer scale. The diodes have been made in the form of a sandwich structure, with the conductive polymer poly(3,4-ethylene-dioxythiophene) polymd. in the pores of com. available microfiltration membranes defining the **hole- injecting** contacts,

poly[3-(4-octylphenyl)-2,2'-bithiophene] as the light-emitting layer, and a thin film of calcium-aluminum as the electron injector.

IT **159838-09-2**, Poly[3-(4-octylphenyl)-2,2'-bithiophene]
(light-emitting diodes from conductive light-emitting layers of)

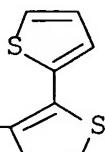
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



Me—(CH₂)₇

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT **159838-09-2**, Poly[3-(4-octylphenyl)-2,2'-bithiophene]
(light-emitting diodes from conductive light-emitting layers of)

L40 ANSWER 18 OF 21 HCA COPYRIGHT 2007 ACS on STN

AN 114:131642 HCA Full-text

TI Functionalization of poly(3-methylthiophene) film electrodes:
doping of iron-thiolate complexes

AU Fabre, Paul Louis; Dalger, Alain

CS Inst. Natl. Polytech., Univ. Paul Sabatier, Toulouse, 31077, Fr.

SO Journal of Chemical Research, Synopses (1991), (1), 16-17

CODEN: JRPSDC; ISSN: 0308-2342

DT Journal

LA English

AB Conditions of the electrochem. polymn. of thiophene derivs. in MeCN contg. Et₄NBF₄ are summarized. The possibility of an exchange of BF₄⁻ in polymers by Fe(SPh)₄²⁻ is described. The functionalization of poly(3-methylthiophene) by reaction with bromosuccinimide, thiourea and Fe complex is briefly discussed.

IT **98837-50-4P**

(formation of, in functionalization of poly(methylthiophene) with bromosuccinimide and thiourea)

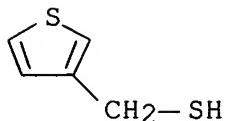
RN 98837-50-4 HCA

CN 3-Thiophenemethanethiol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 16406-94-3

CMF C5 H6 S2



CC 72-2 (Electrochemistry)

Section cross-reference(s): 36

IT **98837-50-4P**

(formation of, in functionalization of poly(methylthiophene) with bromosuccinimide and thiourea)

L40 ANSWER 19 OF 21 HCA COPYRIGHT 2007 ACS on STN

AN 111:233710 HCA Full-text

TI Soluble ethylmercapto-substituted polythiophenes

AU Ruiz, J. P.; Nayak, K.; Marynick, D. S.; Reynolds, J. R.

CS Dep. Chem., Univ. Texas, Arlington, TX, USA

SO Report (1988), TR-10; Order No. AD-A199960, 41 pp.

Avail.: NTIS

From: Gov. Rep. Announce. Index (U. S.) 1989, 89(4), Abstr. No. 908,584

DT Report

LA English

AB Homopolymers of 3-(mercptoethyl)- (I) and 3,4-bis(mercptoethyl)thiophene (II) were synthesized and characterized. These polymers were sol. in common org. solvents such as CH₂Cl₂, CHCl₃, and THF. Structural characterization using FT-IR and NMR spectroscopy showed that these polymers had a well-defined β-mercptoethyl-substituted 2,5-(thienylene) polymeric structure. Visible-near IR absorption spectra of electrochem. doped cast films and chem. doped solns. of the polymers showed that they could be oxidized to form bipolaronic species. GPC studies showed a no.-av. mol. wt. of .apprx.2500 (polydispersity .apprx.5) for both polymers. Max. elec. conductivities of 103 and 107 Ω/cm for the I and II polymers, resp., were obtained in the oxidized state. Exptl. results were correlated with theor. calcns. using the PRDDO and extended Hueckel methods, which demonstrated radical-cation reactivities for

the thiophene monomers, along with min. energy conformations and band structures in these substituted polymers.

IT **124036-28-8 124036-36-8**

(structure and elec. cond. of doped)

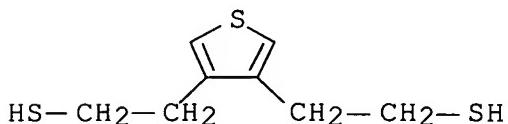
RN 124036-28-8 HCA

CN 3,4-Thiophenediethanethiol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 124036-27-7

CMF C8 H12 S3



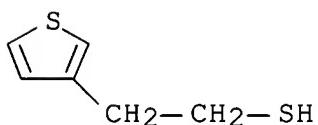
RN 124036-36-8 HCA

CN 3-Thiopheneethanethiol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 65062-26-2

CMF C6 H8 S2



CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36

IT **124036-28-8 124036-36-8**

(structure and elec. cond. of doped)

L40 ANSWER 20 OF 21 HCA COPYRIGHT 2007 ACS on STN

AN 106:225357 HCA Full-text

TI Processible, environmentally stable, highly conductive forms of polythiophene

AU Elsenbaumer, R. L.; Jen, K. Y.; Miller, G. G.; Shacklette, L. W.

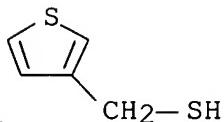
CS Allied-Signal Corp., Morristown, NJ, 07960, USA

SO Synthetic Metals (1987), 18(1-3), 277-82
CODEN: SYMEDZ; ISSN: 0379-6779
DT Journal
LA English
AB A series of soln. processible poly(3-alkylthiophenes) are described which form highly conductive, environmentally stable complexes with electron acceptors. These materials are quite unusual in that, in addn. to their attractive properties, conductivities are generally high and surprisingly insensitive to the length of the alkyl substituents.

IT **98837-50-4**
(elec. cond., processibility, and environmental stability of)
RN 98837-50-4 HCA
CN 3-Thiophenemethanethiol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 16406-94-3
CMF C5 H6 S2



CC 76-2 (Electric Phenomena)
Section cross-reference(s): 35, 38
IT 84928-92-7, Poly(3-methylthiophene) 85701-86-6,
Poly(3,4-dimethylthiophene) 90451-70-0, Poly(3-ethylthiophene)
98837-48-0 98837-49-1, 3-Butylthiophene-3-methylthiophene
copolymer **98837-50-4** 98837-51-5, Poly(3-butylthiophene)
(elec. cond., processibility, and environmental stability of)

L40 ANSWER 21 OF 21 HCA COPYRIGHT 2007 ACS on STN
AN 103:170437 HCA Full-text
TI Processible and environmentally stable conducting polymers
AU Jen, K. Y.; Oboodi, R.; Elsenbaumer, R. L.
CS Corp. Technol., Allied Corp., Morristown, NJ, 07960, USA
SO Polymeric Materials Science and Engineering (1985), 53,
79-83
CODEN: PMSEDG; ISSN: 0743-0515
DT Journal
LA English

AB A series of poly(3-alkylthiophenes) were synthesized and characterized which form highly conductive, environmentally stable complexes with electron acceptors and which are soln. processible from org. solvents in both their conductive and neutral forms. Conductivities of the polymers doped with I and nitrosyl salts are tabulated. Neither the size of the substituent nor the nature of the dopant affects the cond. of the doped complexes greatly. Alkyl substituents greater than Bu in size improve greatly the solv. of the undoped polymers and also render the doped, conductive forms sol. in many common org. solvents.

IT **98837-50-4**

(elec. cond. of iodine-doped)

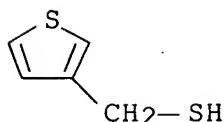
RN 98837-50-4 HCA

CN 3-Thiophenemethanethiol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 16406-94-3

CMF C5 H6 S2



CC 76-2 (Electric Phenomena)
Section cross-reference(s): 37
IT 90451-70-0 **98837-50-4**
(elec. cond. of iodine-doped)

=> D L41 1-27 BIB ABS HITSTR HITIND

L41 ANSWER 1 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 142:355769 HCA Full-text

TI Conjugated polymers and their preparation and use

IN Vestweber, Horst; Gerhard, Anja; Stoessel, Philipp

PA Covion Organic Semiconductors G.m.b.H., Germany

SO PCT Int. Appl., 31 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 2

PATENT NO.

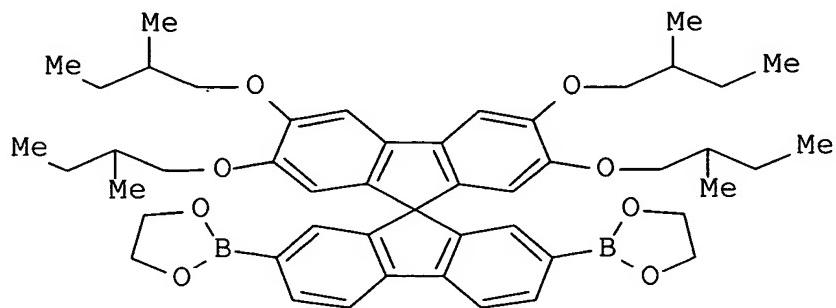
KIND DATE

APPLICATION NO.

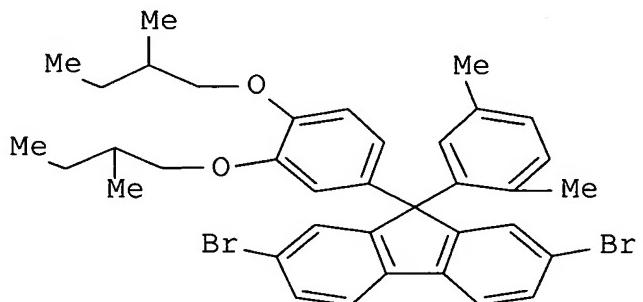
DATE

PI	WO 2005030828	A1	20050407	WO 2004-EP10505	200409 18
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RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10343606	A1	20050414	DE 2003-10343606		200309 20
DE 10357317	A1	20050630	DE 2003-10357317		200312 05
EP 1668058	A1	20060614	EP 2004-765395		200409 18
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CN 1852934	A	20061025	CN 2004-80027130		200409 18
			<--		
JP 2007505958	T	20070315	JP 2006-526603		200409 18
			<--		
PRAI	DE 2003-10343606	A	20030920	<--	
	DE 2003-10357317	A	20031205	<--	
	WO 2004-EP10505	W	20040918		

GI



I



II

AB The title polymers, inert to air and with low voltage rise when used with polymer LED's, contain ≥ 5 mol% heterocyclic units of specified structure. Suzuki coupling gave a polymer contg. 2,2'-(5,5'-2,5-pentoxy-1,4-phenylene)bithiophene 30, monomer I 50, monomer II 10, and N,N'-bis(4-tert-butylphenyl)-N,N'-bis(4- bromophenyl)-4,4'-biphenyldiamine 10 mol% with wt.- and no.-av. mol. wt. 593,000 and 89,000, resp.; and electroluminescence λ_{max} 512/541 nm.

IT **849113-58-2P**

(conjugated polymers and their prepn. and use)

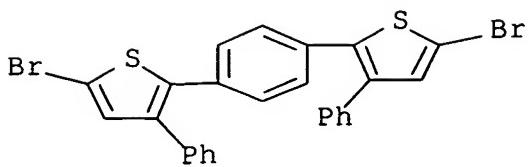
RN 849113-58-2 HCA

CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,2'-(1,4-phenylene)bis[5-bromo-3-phenylthiophene] and 2,2'-(2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

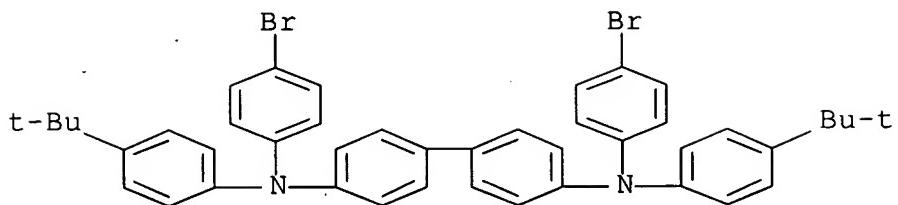
CRN 849113-52-6

CMF C26 H16 Br2 S2



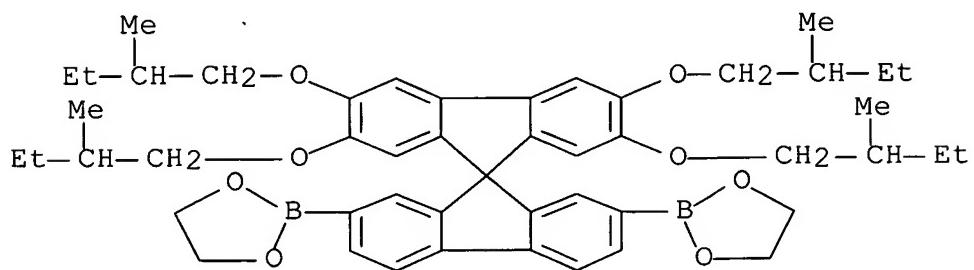
CM 2

CRN 463944-36-7
CMF C44 H42 Br2 N2



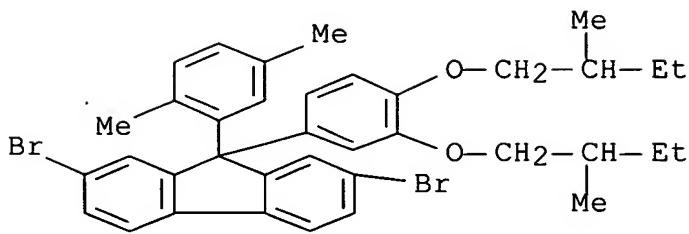
CM 3

CRN 396123-43-6
CMF C49 H62 B2 O8



CM 4

CRN 396123-39-0
CMF C37 H40 Br2 O2



IC ICM C08G061-00
 ICS H01L051-00

CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 27

IT Electroluminescent devices
 (polymer; conjugated polymers for use in polymer LED's)
 IT 849113-54-8P 849113-56-0P **849113-58-2P** 849113-60-6P
 (conjugated polymers and their prepn. and use)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 2 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 141:425345 HCA Full-text

TI Non-conjugated polymeric perarylated boranes, use thereof as organic semiconductor transmitters and/or transport materials, methods for producing same and uses thereof

IN Kanitz, Andreas; Rogler, Wolfgang; Woerle, Jasmin

PA Osram Opto Semiconductors, Germany

SO PCT Int. Appl., 60 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2004099291	A1	20041118	WO 2004-EP4901	200405 07

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W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
 MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,

SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,
DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL,
PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG

DE 102004001865 A1 20041216 DE 2004-102004001865

200401
13

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EP 1620492 A1 20060201 EP 2004-731627

200405
07

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R: DE
CN 1784455 A 20060607 CN 2004-80012523

200405
07

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US 2006229431 A1 20061012 US 2004-555982

200405
07

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JP 2006525395 T 20061109 JP 2006-505399

200405
07

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PRAI DE 2003-10320713 A 20030508 <--
DE 2004-102004001865 A 20040113
WO 2004-EP4901 W 20040507

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Copolyarylboranes with non-conjugated arom. and/or heteroarom. luminophors (as an example I, II or others) are transformed into a type of structure which acts like a conjugated polymer only when a suitable elec. field is applied and/or in case of strong donor substituents in arom. part of the mol. Such polyarylboranes are used in org. **light-emitting** diodes, org. solar cells, org. photodetectors and org. field effect transistors. As an example, I is prep'd. by reacting of Grignard reagents of the appropriate fluorene component with diamine component and dimethoxymesitylborane in THF. **OLED**

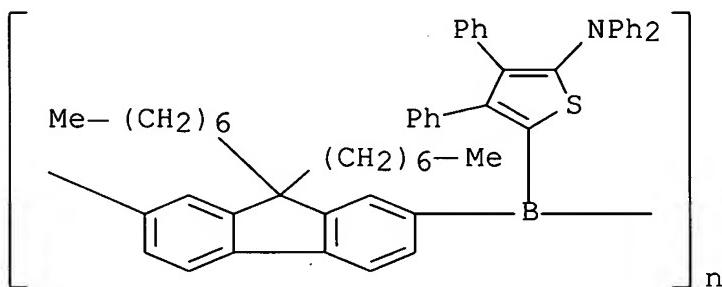
manufd. by coating ITO with II exhibits an effective
electroluminescence with max. 460-480 nm.

IT 794549-26-1P 794549-34-1P

(copolarylboranes with non-conjugated luminophors useful in
light-emitting diodes, org. solar cells, org.
photodetectors and org. field effect transistors)

RN 794549-26-1 HCA

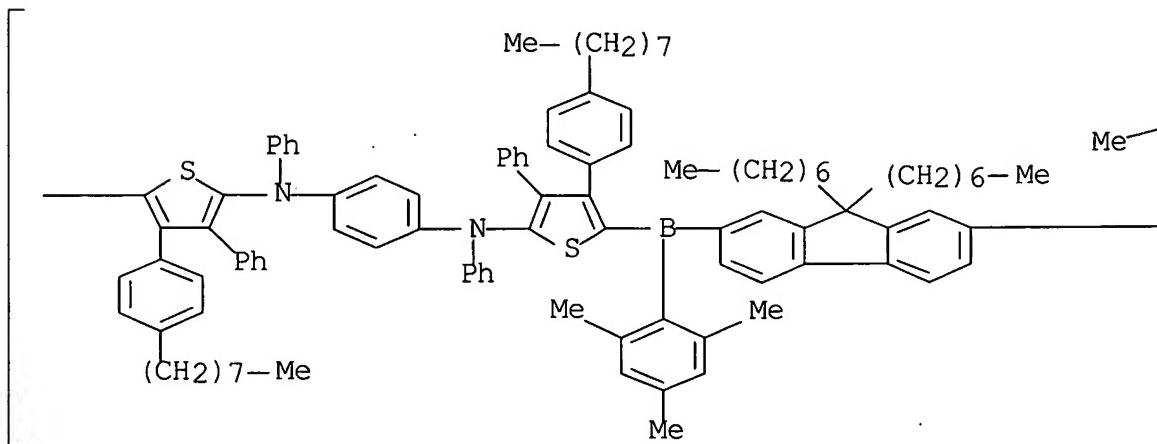
CN Poly[[[5-(diphenylamino)-3,4-diphenyl-2-thienyl]borylene] (9,9-
diheptyl-9H-fluorene-2,7-diyl)] (9CI) (CA INDEX NAME)

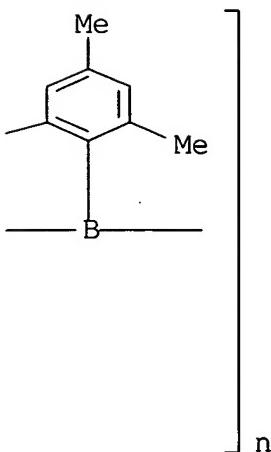


RN 794549-34-1 HCA

CN Poly[[3-(4-octylphenyl)-4-phenyl-2,5-thiophenediyl] (phenylimino)-1,4-
phenylene (phenylimino) [4-(4-octylphenyl)-3-phenyl-2,5-
thiophenediyl] [(2,4,6-trimethylphenyl)borylene] (9,9-diheptyl-9H-
fluorene-2,7-diyl) [(2,4,6-trimethylphenyl)borylene]] (9CI) (CA
INDEX NAME)

PAGE 1-A





IC ICM C08G079-00
 ICS C08G079-08; C08G083-00; C08G077-56; H01L051-00
 CC 41-5 (Dyes, Organic Pigments, Fluorescent Brighteners, and
 Photographic Sensitzers)
 Section cross-reference(s): 28
 ST nonconjugated polymeric perarylated borane org **light**
emitting diode use; polymeric perarylated borane org solar
 cell photodetector use; perarylated polymeric borane field effect
 transistor use
 IT Polymers, preparation
 (boron-contg.; copolyarylboranes with non-conjugated luminophors
 useful in **light-emitting** diodes, org. solar
 cells, org. photodetectors and org. field effect transistors)
 IT Conducting polymers
 Electroluminescent devices
 Field effect transistors
 Luminescent substances
 Semiconductor device fabrication
 Solar cells
 (copolyarylboranes with non-conjugated luminophors useful in
 light-emitting diodes, org. solar cells, org.
 photodetectors and org. field effect transistors)

IT 794549-19-2P
(copolarylboranes with non-conjugated luminophors useful in
light-emitting diodes, org. solar cells, org.
photodetectors and org. field effect transistors)

IT 33675-70-6P 34907-53-4P 197223-36-2P 351424-80-1P
351424-85-6P 351432-43-4P 449144-21-2P 477855-60-0P
477855-70-2P 794548-74-6P 794548-76-8P 794548-82-6P
794548-86-0P 794548-89-3P 794548-92-8P 794548-94-0P
794548-96-2P 794548-98-4P 794549-01-2P 794549-03-4P
794549-05-6P 794549-07-8P 794549-09-0P 794549-11-4P
794549-13-6P 794549-16-9P
(copolarylboranes with non-conjugated luminophors useful in
light-emitting diodes, org. solar cells, org.
photodetectors and org. field effect transistors)

IT 2633-66-1DP, Mesitylmagnesium bromide, reaction products with
polufluorenyleneborane 351424-83-4DP, reaction products with
polufluorenyleneborane 794549-09-0DP, reaction products with
polufluorenyleneborane 794549-21-6P 794549-23-8DP, reaction
products with mesityl magnesium bromide **794549-26-1P**
794549-29-4P **794549-34-1P**
(copolarylboranes with non-conjugated luminophors useful in
light-emitting diodes, org. solar cells, org.
photodetectors and org. field effect transistors)

IT 70-11-1, Phenacyl bromide 74-31-7, N,N'-Diphenyl-p-
phenylenediamine 79-04-9, Chloroacetyl chloride 86-73-7,
Fluorene 90-30-2, Phenyl-1-naphthylamine 99-73-0 103-80-0,
2-Phenylacetylchloride 109-72-8, Butyllithium, reactions
121-43-7, Boric acid trimethyl ester 122-39-4, Diphenylamine,
reactions 629-04-9, Heptyl bromide 946-03-2 1133-80-8,
2-Bromofluorene 1646-53-3, 3-Bromodurene 1646-54-4,
Dibromodurene 7705-08-0, Iron chloride (FeCl₃), reactions
15155-41-6 19172-47-5
(copolarylboranes with non-conjugated luminophors useful in
light-emitting diodes, org. solar cells, org.
photodetectors and org. field effect transistors)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

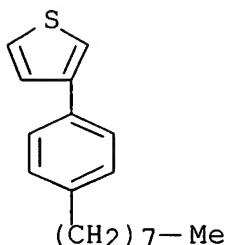
L41 ANSWER 3 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 138:229009 HCA Full-text
TI **Light emitting device** and method for
manufacturing same
IN Ogino, Kiyofumi
PA Semiconductor Energy Laboratory Co., Ltd., Japan
SO U.S. Pat. Appl. Publ., 30 pp.
CODEN: USXXCO
DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003042849	A1	20030306	US 2002-229132	200208 28
				<--	
JP	2003068457	A	20030307	JP 2001-259953	200108 29
				<--	
PRAI	JP 2001-259953	A	20010829	<--	
AB	A method of fabricating a light emitting device is described entailing forming a thin film transistor over a substrate; forming an electrode elec. connected to the thin film transistor; providing a mask over the electrode ; aligning an application position over the electrode with an opening of the mask; fixing the mask; and applying an application liq. over the electrode by a spin coat technique to form an org. compd. layer in the application position. Also, a sucker (e.g. magnet) may be provided to place the mask (e.g., metal mask) in sufficient contact with the substrate without causing positional deviation during film forming, thereby making possible to form an org. compd. layer with accuracy. A light emitting device fabricated by the method is also described comprising a first and a second anodes over a substrate; a first org. compd. layer formed on the first and second anodes , the first org. compd. extending between the first and second anodes ; a second org. compd. layer formed over the first anode with the first org. compd. layer interposed; a third org. compd. layer formed over the second anode with the first org. compd. layer interposed; and a cathode formed on the second and third org. compd. layers and the first org. compd. layer, the cathode extending between the second and third org. compd. layers. The light-emitting device may be the one selected from a display device, a digital still camera, a notebook personal computer, a mobile computer, a portable image reproducing device having a recording medium, a goggle-type display, a video camera and a cellular phone.				
IT	141807-85-4, Poly(3-(4-octylphenyl)-thiophene) 159838-09-2, Poly(3-[4-octylphenyl]-2,2'-bithiophene)				
	(org. layer of LED ; light emitting device and method of fabrication of films for light emitting device)				
RN	141807-85-4 HCA				
CN	Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)				

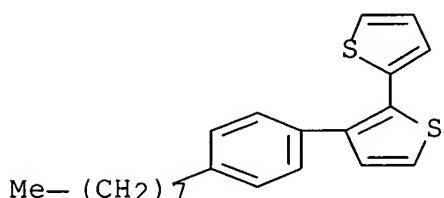
CRN 141807-84-3
CMF C18 H24 S



RN 159838-09-2 HCA
CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1
CMF C22 H26 S2



IC ICM H05B033-00
INCL 313504000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 74, 76, 77
ST **light emitting device** mask fixing
fabrication
IT Polyacetylenes, uses
(alkyl deriv., org. layer of LED; **light emitting device** and method of fabrication of
films for **light emitting device**)
IT **Electroluminescent devices**
(displays; **light emitting device** and method of fabrication of films for

- light emitting device)
- IT Luminescent screens
(electroluminescent; light emitting device and method of fabrication of films for light emitting device)
- IT Electroluminescent devices
Magnetic materials
Semiconductor device fabrication
(light emitting device and method of fabrication of films for light emitting device)
- IT Poly(arylenealkenylenes)
(light emitting device and method of fabrication of films for light emitting device)
- IT Ferrites
Rare earth compounds
(magnet to fix metal mask; light emitting device and method of fabrication of films for light emitting device)
- IT Coating materials
(masking; light emitting device and method of fabrication of films for light emitting device)
- IT Polyanilines.
(org. compd. layer; light emitting device and method of fabrication of films for light emitting device)
- IT Polyphenyls
(org. layer of LED; light emitting device and method of fabrication of films for light emitting device)
- IT 12597-68-1, Stainless steel, uses
(ferritic, mask, martensitic, mask; light emitting device and method of fabrication of films for light emitting device)
- IT 26009-24-5D, Poly(1,4-phenylene-1,2-ethenediyl), deriv.
(light emitting device and method of fabrication of films for light emitting device)
- IT 7440-00-8, Neodymium, uses 7440-42-8, Boron, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 8057-41-8, Alnico
(magnet to fix metal mask; light emitting device and method of fabrication of films for light emitting device)
- IT 7439-89-6, Iron, uses
(mask, magnet to fix metal mask; light emitting

device and method of fabrication of films for
light emitting device)

IT 7440-32-6, Titanium, uses
(mask; **light emitting device** and
method of fabrication of films for **light
emitting device**)

IT 126213-51-2, PEDOT
(org. compd. layer; **light emitting
device** and method of fabrication of films for
light emitting device)

IT 9033-83-4D, Polyphenylene, alkyl deriv. 25067-58-7D,
Polyacetylene, alkyl deriv. 25190-62-9D, Poly(1,4-phenylene),
2,5-dialkoxy 25190-62-9D, Poly(1,4-phenylene), deriv.
25233-34-5D, Polythiophene, 3-alkyl- 26009-24-5D,
Poly(1,4-phenylene vinylene), 2,5-dialkoxy, 2-dialkoxyphenyl
26009-24-5D, Poly(1,4-phenylene vinylene), 2-dialkoxyphenyl
95270-88-5D, Polyfluorene, deriv. 104934-50-1,
Poly(3-hexylthiophene) 120659-35-0, Poly(3-cyclohexylthiophene)
138184-36-8 **141807-85-4**, Poly(3-(4-octylphenyl)-thiophene)
159838-09-2, Poly(3-[4-octylphenyl]-2,2'-bithiophene)
163045-79-2, Poly(3-cyclohexyl-4-methylthiophene) 195456-48-5,
Poly(9,9-dioctyl-9H-fluorene-2,7-diyl) 220613-28-5
(org. layer of **LED**; **light emitting
device** and method of fabrication of films for
light emitting device)

L41 ANSWER 4 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 137:101138 HCA Full-text
TI Sub-micrometer bridge **electrode** arrays for **light
emitting** polymer diodes and photodiodes
AU Nyberg, Tobias; Zhang, Fengling; Inganäs, Olle
CS Biomolecular and Organic Electronics, Department of Physics and
Measurement Technology, Linköpings Universitet, Linköping, SE-581
83, Swed.
SO Nanotechnology (**2002**), 13(2), 205-211
CODEN: NNOTER; ISSN: 0957-4484
PB Institute of Physics Publishing
DT Journal
LA English
AB The authors used a method of soft lithog., soft imprinting, to
fabricate sub-micrometer structures to be used as **light emitting**
polymer diodes and photodiodes. Using a silicone rubber replica
(stamp) of an optical diffraction grating the authors transferred the
grating pattern to an org. resist layer by placing the stamp in
conformal contact with the resist. The transferred pattern was
subsequently used as an etch mask for the processing of the device.
This cheap and fast process, not limited by optical diffraction, was

used to fabricate sub-micrometer structures over large areas, square millimeters. The structures were successfully used as **light emitting** diodes and photodiodes, with device characteristics influenced by the imposed structure.

IT 200574-66-9, 3-(2'-Methoxy-5'-octylphenyl)thiophene homopolymer
(sub-micrometer bridge **electrode** arrays for
light emitting polymer diodes and photodiodes)

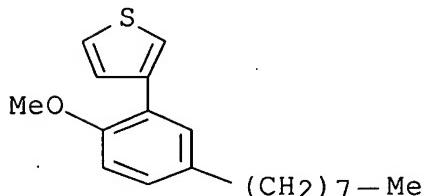
RN 200574-66-9 HCA

CN Thiophene, 3-(2-methoxy-5-octylphenyl)-, homopolymer (CA INDEX NAME)

CM 1

CRN 200574-65-8

CMF C19 H26 O S



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST **electroluminescent** polymer diode photodiode diffraction grating microstructure

IT Diffraction gratings

Diodes

Electroluminescent devices

Microstructure

Photodiodes

(sub-micrometer bridge **electrode** arrays for
light emitting polymer diodes and photodiodes)

IT 200574-66-9, 3-(2'-Methoxy-5'-octylphenyl)thiophene homopolymer

(sub-micrometer bridge **electrode** arrays for
light emitting polymer diodes and photodiodes)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 5 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 136:295394 HCA Full-text

TI Phenylene-functionalized polythiophene derivatives for **light-emitting** diodes: their synthesis, characterization and properties

AU Ding, Ai-Lin; Pei, Jian; Lai, Yee-Hing; Huang, Wei

CS Institute of Materials Research and Engineering and Department of Chemistry, National University of Singapore, Singapore, 117602, Singapore

SO Journal of Materials Chemistry (2001), 11(12), 3082-3086

CODEN: JMACEP; ISSN: 0959-9428

PB Royal Society of Chemistry

DT Journal

LA English

AB The design, synthesis and characterization of a new series of conjugated polymers, poly[(3-(4'-n-butylphenyl)thiophene-2,5-diyl)(2,5-dialkoxy-1,4-phenylene)(4-(4'-n-butylphenyl)thiophene-2,5-diyl)] are described in this contribution. Three polymers modified by Ph groups have been successfully synthesized via FeCl₃-oxidative polymn. The well-defined structure of the polymers is fully verified by elemental anal., FT-IR, and ¹H and ¹³C NMR spectroscopy. All polymers show good thermal stability and solv. in common org. solvents. The abs. photoluminescence (PL) efficiencies of the polymers in the neat film can be up to 11%. The electrochem. properties of the polymers indicate that their HOMO and LUMO energy levels can be adjusted by means of the arom. groups both in the side chain and the backbone structure. Yellowish green **electroluminescence** is achieved from single-layered polymer **light-emitting** diodes (PLEDs) with the configuration ITO/polymer/Ca or Al.

IT 265098-45-1P 406951-47-1P 406951-49-3P
(synthesis, characterization and properties of phenylene-functionalized polythiophene derivs. for **light-emitting** diodes)

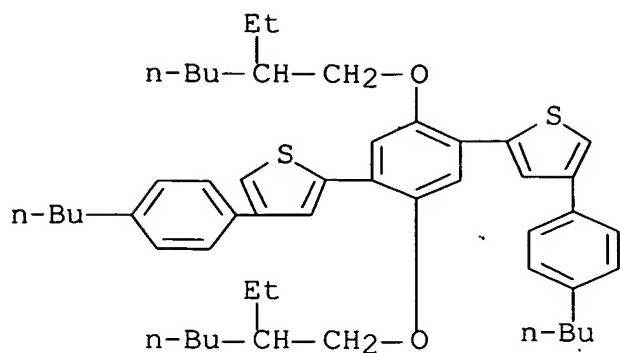
RN 265098-45-1 HCA

CN Thiophene, 2,2'-[2,5-bis[(2-ethylhexyl)oxy]-1,4-phenylene]bis[4-(4-butylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 265098-44-0

CMF C50 H66 O2 S2



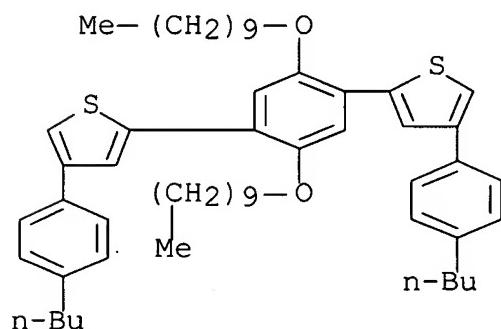
RN 406951-47-1 HCA

CN Thiophene, 2,2'-[2,5-bis(decyloxy)-1,4-phenylene]bis[4-(4-butylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 406951-46-0

CMF C54 H74 O2 S2



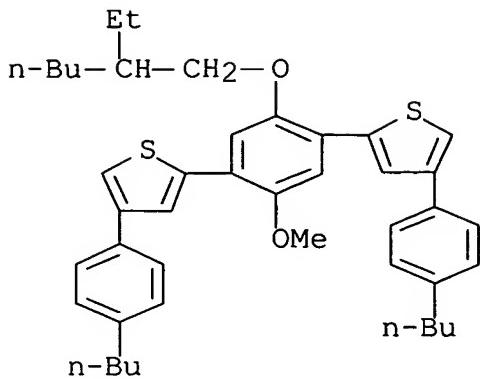
RN 406951-49-3 HCA

CN Thiophene, 2,2'-[2-[2-(2-ethylhexyloxy)-5-methoxy-1,4-phenylene]bis[4-(4-butylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 406951-48-2

CMF C43 H52 O2 S2



CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 35, 73, 76

ST phenylene polythiophene deriv conjugated polymer prepn optical
 electrochem property; **light emitting** diode

IT phenylene polythiophene deriv conjugated polymer prepn
 Polymerization
 (oxidative; synthesis, characterization and properties of
 phenylene-functionalized polythiophene derivs. for **light**
-emitting diodes)

IT Band gap
Conducting polymers
Electroluminescent devices
 Electrooptical materials
 Glass transition temperature
 HOMO (molecular orbital)
 LUMO (molecular orbital)
 Luminescence
Luminescence, electroluminescence
 Molecular weight
 Polydispersity
 Voltammetry
 (synthesis, characterization and properties of
 phenylene-functionalized polythiophene derivs. for **light**
-emitting diodes)

IT **265098-45-1P 406951-47-1P 406951-49-3P**
 (synthesis, characterization and properties of
 phenylene-functionalized polythiophene derivs. for **light**
-emitting diodes)

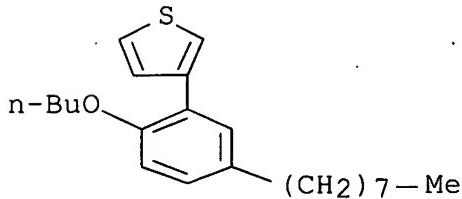
RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT.

TI Patterning of polymer **light-emitting** diodes with soft lithography
AU Granlund, Thomas; Nyberg, Tobias; Roman, Lucimara Stolz; Svensson, Mattias; Inganäs, Olle
CS Department of Physics and Measurement Technology Laboratory of Applied Physics, Linköping University, S-581 83, Swed.
SO Advanced Materials (Weinheim, Germany) (2000), 12(4), 269-273
CODEN: ADVMEW; ISSN: 0935-9648
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB A new method of soft lithog., the lift-up technique, was used to make patterned polymer LEDs for passively addressed diode arrays. The methods of microcontact printing, lift-up, and micromolding in capillaries are discussed. The **conducting** polymers poly(3,4-ethylenedioxythiophene), poly(styrene sulfonate), and poly(3-(2-butoxy-5-octylphenyl)thiophene) were used to demonstrate these methods.
IT **289491-98-1**
(patterning of polymer LEDs with soft lithog. methods)
RN 289491-98-1 HCA
CN Thiophene, 3-(2-butoxy-5-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 289491-97-0

CMF C22 H32 O S



CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 38, 74
IT **Electroluminescent** devices
Lithography
Molding of plastics and rubbers
Printing (impact)

(patterning of polymer LEDs with soft lithog. methods)

IT **Conducting polymers**

Electric current-potential relationship

Luminescence, **electroluminescence**

(patterning of polymer LEDs with soft lithog. methods and
optoelectronic characterization)

IT **289491-98-1**

(patterning of polymer LEDs with soft lithog. methods)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 7 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 133:135804 HCA Full-text

TI Luminescence probing of crystallization in a polymer film

AU Granlund, T.; Pettersson, L. A. A.; Andersson, M. R.; Inganäs, O.

CS Laboratory of Applied Physics, Department of Physics and Measurement
Technology, Linköping University, S-581 83, Swed.

SO Journal of Applied Physics (2000), 87(12), 8549-8556

CODEN: JAPIAU; ISSN: 0021-8979

PB American Institute of Physics

DT Journal

LA English

AB The mechanism of light propagation was studied using a thin film multilayer stack including a highly emissive substituted polythiophene, poly[3-(2,5-dioctylphenyl)thiophene] on top of a structure forming a half cavity. The test structure also comprises Al on a flat Si surface and thermally cured benzocyclobutene layer to planarize topog. features. The photoluminescence spectra revealed that the polythiophene film is inhomogeneous and x-ray diffraction data present evidence of the inhomogeneous film as originating from crystn. of the polymer. The interference effect of light was used to monitor the crystn. regions in the film. Photoluminescence and absorption were red shifted upon crystn. and displayed an enhanced vibronic structure. Comparison between calcd. and measured photoluminescence shows that the crystn. starts from the top of the film and not from the supporting substrate. The phenomena are of relevance to operation of **light emitting** diodes based on polymers that control charge injection balance.

IT **189283-30-5, Poly[3-(2,5-dioctylphenyl)thiophene]**

(crystn. of poly(dioctylphenyl thiophene) emitter and effect of
structure on luminescence and light propagation)

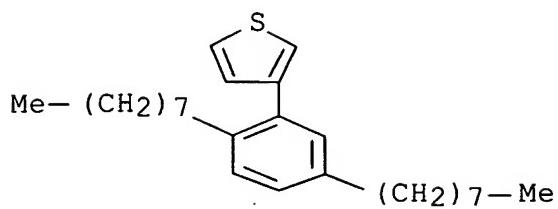
RN 189283-30-5 HCA

CN Thiophene, 3-(2,5-dioctylphenyl)-, homopolymer (CA INDEX NAME)

CM 1

CRN 189283-29-2

CMF C26 H40 S



CC 36-3 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 74
ST dioctylphenylthiophene polymer crystn structure light propagation;
luminescence morphol polythiophene multilayer cavity;
conducting polymer crystn reflectance thickness layer
IT **Conducting** polymers
Crystallization
Interference
Luminescence
Optical absorption
Refractive index
(crystn. of poly(dioctylphenyl thiophene) emitter and effect of
structure on luminescence and light propagation)
IT **189283-30-5**, Poly[3-(2,5-dioctylphenyl)thiophene]
(crystn. of poly(dioctylphenyl thiophene) emitter and effect of
structure on luminescence and light propagation)
RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 8 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 133:96487 HCA Full-text
TI Characteristics of polythiophene surface **light emitting** diodes
AU Kaminorz, Y.; Smela, E.; Johansson, T.; Brehmer, L.; Andersson, M.
R.; Inganäs, O.
CS Institute of Physics, Condensed Matter Physics, University of
Potsdam, Potsdam, 14469, Germany
SO Synthetic Metals (2000), 113(1-2), 103-114
CODEN: SYMEDZ; ISSN: 0379-6779
PB Elsevier Science S.A.
DT Journal
LA English
AB Surface **light emitting** diodes (SLEDs), in which previously
microfabricated **electrodes** were coated with a conjugated polymer,
were made with greatly different **electrode** spacings (250 nm and 10 or

20 μm) and with different **electrode** material combinations. The fabrication process allowed one to compare several **electrode** materials. The SLED structures also enabled imaging of the **light emission** zone with fluorescence video microscopy. Conventional sandwich structures were also made for comparison (**electrode** sepns. 50 nm). The emitting layer was poly[3-(2',5'-bis(1'',4'',7''trioxaoctyl)phenyl)-2,2'-bithiophene] (EO-PT), a conjugated polymer based on polythiophene with oligo(ethyleneoxide) side chains. The current-voltage ($I(V)$) and light-voltage ($L(V)$) characteristics of the SLEDs were largely insensitive to **electrode** sepns. except at high voltages, at which the current in the devices with the largest sepns. was limited. Sandwich structures had the same light output at a given current. Light could be obtained in forward and reverse bias from In Sn oxide (ITO)-Al, Au silicide-Al, and Au silicide-Au SLEDs, but the turn-on voltages were lowest with the ITO-Al devices, and these were also the brightest and most reliable. Adding salt to the EO-PT increased the current and brightness, decreased the turn-on voltages, and made the $I(V)$ characteristics sym.; thus, a device with an **electrode** sepns. of 10 μm had the extraordinarily low turn-on voltage of 6 V The location of the **light emission** was at the electron-injecting contact.

IT 223655-11-6

(characteristics of polythiophene surface **light emitting** diodes with polythiophene characterization)

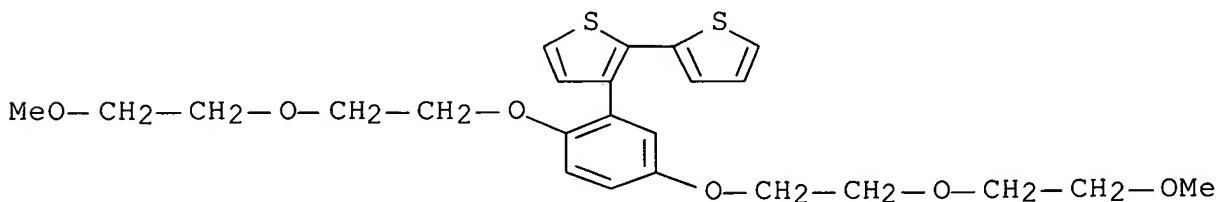
RN 223655-11-6 HCA

CN 2,2'-Bithiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer (CA INDEX NAME)

CM 1

CRN 223655-10-5

CMF C24 H30 06 S2



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 36, 66, 76

ST LED thiophene polymer surface salt; lithium

trifluoromethanesulfonate LED thiophene polymer surface; luminescence thiophene polymer LED; **electroluminescence** thiophene polymer LED; HOMO thiophene polymer LED; LUMO thiophene polymer LED; cyclic voltammetry thiophene polymer LED salt dopant; current voltage thiophene polymer LED salt dopant; **electrode** LED thiophene polymer aluminum gold ITO; interface **electrode** LED thiophene polymer aluminum gold ITO

IT Cyclic voltammetry
Electric current-potential relationship
Electroluminescent devices
HOMO (molecular orbital)
LUMO (molecular orbital)
Luminescence
Luminescence, **electroluminescence**
Microelectrodes
Solid-solid interface
UV and visible spectra
(characteristics of polythiophene surface **light emitting** diodes with polythiophene characterization)

IT Polymers, uses
(conjugated; characteristics of polythiophene surface
light emitting diodes with polythiophene characterization)

IT 50926-11-9, ITO
(characteristics of polythiophene surface **light emitting** diodes with polythiophene characterization)

IT 33454-82-9, Lithium trifluoromethanesulfonate
(characteristics of polythiophene surface **light emitting** diodes with polythiophene characterization)

IT 223655-11-6
(characteristics of polythiophene surface **light emitting** diodes with polythiophene characterization)

IT 11109-42-5
(**electrode** layer; characteristics of polythiophene surface **light emitting** diodes with polythiophene characterization)

IT 7429-90-5, Aluminum, uses 7440-47-3, Chromium, uses
(**electrode**; characteristics of polythiophene surface
light emitting diodes with polythiophene characterization)

IT 7440-57-5, Gold, uses
(**electrode**; characteristics of polythiophene surface
light emitting diodes with polythiophene characterization)

IT 7631-86-9, Silica, uses
(insulating layer; characteristics of polythiophene surface
light emitting diodes with polythiophene

characterization)

RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 9 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 132:308749 HCA Full-text

TI Synthesis and characterization of a new yellow-green light-emitting polymer - poly{1,4-bis[3-(4'-butylphenyl)thienyl]-2,5-di(2'-ethylhexyloxy)phenylene}

AU Ding, A.-L.; Pei, J.; Chen, Z.-K.; Lai, Y.-H.; Huang, W.

CS Department of Chemistry, National University of Singapore,
Singapore, Singapore

SO Thin Solid Films (2000), 363(1,2), 114-117

CODEN: THSFAP; ISSN: 0040-6090

PB Elsevier Science S.A.

DT Journal

LA English

AB A novel conjugated polymer (PBBPTDEHP), which has a regioregular structure, was successfully synthesized in chloroform using FeCl₃ as the oxidizing reagent. The polymer shows good thermal stability and can be easily dissolved in xylene, chloroform, THF (THF) and other common org. solvents. Due to the symmetry of the monomer, the polymer formed contains no head-head configurational isomers and has high regioregular structure. The structure and the purity of the polymer were characterized by FTIR, ¹H NMR, ¹³C NMR, MS, and elemental anal. The absorption edge of the UV-VIS spectrum of the film sample indicates that the band gap of the polymer is 2.48 eV, which corresponds to yellow-green emission. The polymer shows very similar electrochem. properties to polythiophenes while retaining the synthetic flexibility for substitution found in phenylene. All of the results indicate that the polymer is a promising yellow-green emissive material for application in **light-emitting devices** (LEDs).

IT 265098-45-1P

(yellow-green light-emitting poly{1,4-bis[3-(4'-butylphenyl)thienyl]-2,5-di(2'-ethylhexyloxy)phenylene})

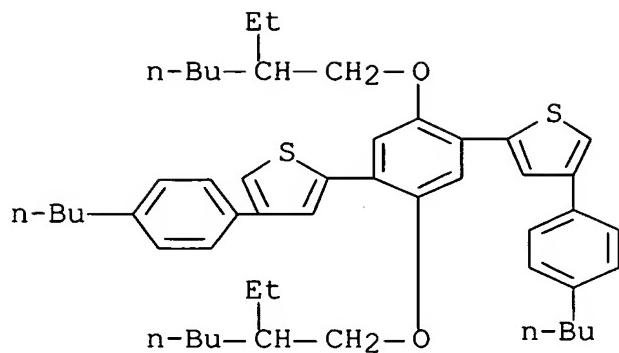
RN 265098-45-1 HCA

CN Thiophene, 2,2'-[2,5-bis[(2-ethylhexyl)oxy]-1,4-phenylene]bis[4-(4-butylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 265098-44-0

CMF C50 H66 O2 S2



CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 73

IT **265098-45-1P**

(yellow-green light-emitting poly{1,4-bis[3-(4'-butylphenyl)thienyl]-2,5-di(2'-ethylhexyloxy)phenylene})

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 10 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 131:200188 HCA Full-text

TI Synthesis of regio-regular phenyl substituted polythiophenes with FeCl₃

AU Andersson, M. R.; Mammo, W.; Olinga, T.; Svernsson, M.; Theander, M.; Inganäs, O.

CS Departments Polymer Technology and Organic Chemistry, Chalmers Univ. Technology, Goeteborg, SE-412 96, Swed.

SO Synthetic Metals (1999), 101(1-3), 11-12
CODEN: SYMEDZ; ISSN: 0379-6779

PB Elsevier Science S.A.

DT Journal

LA English

AB The versatility of the regio-regular polymn. of substituted 3-phenylthiophenes with FeCl₃ by oxidative polymn. was studied. The monomers were prep'd. by Pd catalyzed coupling of 3-thiopheneboronic acid with the corresponding aryl bromides or iodides. Polymn. was effected by slow addn. of a slurry of FeCl₃ in chloroform to a soln. of the monomer to final concn. of monomer and FeCl₃ of 0.05 M and 0.2 M (1:4) in most cases; treatment of the reaction mixt. with MeOH resulted in pptn. of the polymer. Regio-regular and sol. polythiophenes with alkyl, alkoxy, or diethylene glycol side chains on the Ph ring were prep'd. Some of the polymers have relatively low bandgap and some have high photoluminescence efficiency. P 23354-94-1P 35299-71-9P 54679-22-0P 54987-01-8P 58930-53-3P 81294-16-8P,

3,2':5',3'''-Terthiophene 128140-93-2P 128140-94-3P 128140-95-4P
128140-96-5P 128140-97-6P 128140-98-7P 128140-99-8P 128141-00-4P
128141-02-6P 128141-03-7P 128141-04-8P 128141-05-9P.

IT **141807-85-4P 150773-53-8P 189283-30-5P**
200574-66-9P 211045-92-0P 223655-08-1P
240803-05-8P 240803-07-0P 240803-09-2P
240803-11-6P 240803-13-8P

(prepn. and optical band gap and photoluminescence efficiency of
regio-regular phenyl-substituted polythiophenes via oxidative
polymn.)

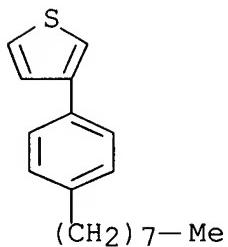
RN 141807-85-4 HCA

CN Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 141807-84-3

CMF C18 H24 S



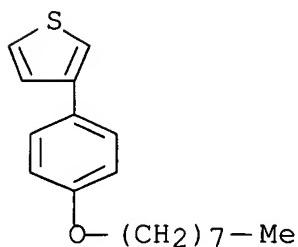
RN 150773-53-8 HCA

CN Thiophene, 3-[4-(octyloxy)phenyl]-, homopolymer (CA INDEX NAME)

CM 1

CRN 150773-52-7

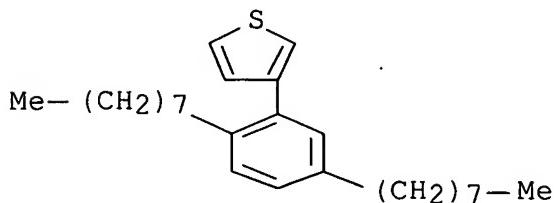
CMF C18 H24 O S



RN 189283-30-5 HCA
CN Thiophene, 3-(2,5-dioctylphenyl)-, homopolymer (CA INDEX NAME)

CM 1

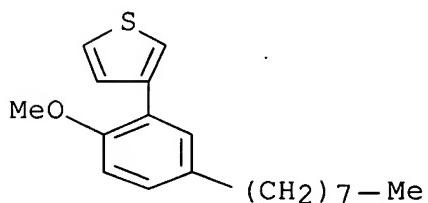
CRN 189283-29-2
CMF C26 H40 S



RN 200574-66-9 HCA
CN Thiophene, 3-(2-methoxy-5-octylphenyl)-, homopolymer (CA INDEX NAME)

CM 1

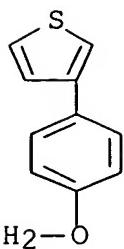
CRN 200574-65-8
CMF C19 H26 O S



RN 211045-92-0 HCA
CN Thiophene, 3-[4-[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 211045-91-9
CMF C15 H18 O3 S



$$\text{MeO}-\text{CH}_2-\text{CH}_2-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}$$

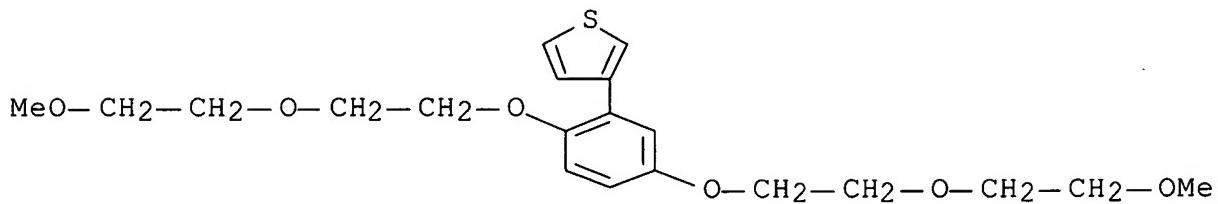
RN 223655-08-1 HCA

CN Thiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 223655-07-0

CMF C20 H28 06 S



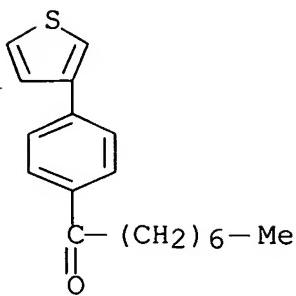
RN 240803-05-8 HCA

CN 1-Octanone, 1-[4-(3-thienyl)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 240803-04-7

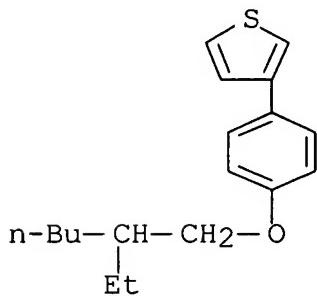
CMF C18 H22 O S



RN 240803-07-0 HCA
CN Thiophene, 3-[4-(2-ethylhexyl)oxy]phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

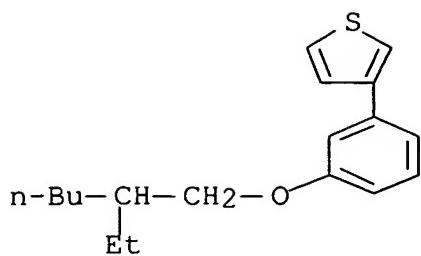
CRN 240803-06-9
CMF C18 H24 O S



RN 240803-09-2 HCA
CN Thiophene, 3-[3-(2-ethylhexyl)oxy]phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 240803-08-1
CMF C18 H24 O S



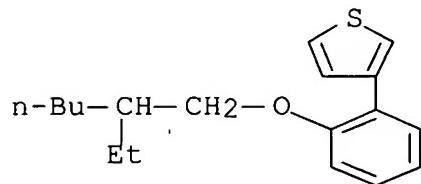
RN 240803-11-6 HCA

CN Thiophene, 3-[2-[(2-ethylhexyl)oxy]phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 240803-10-5

CMF C18 H24 O S



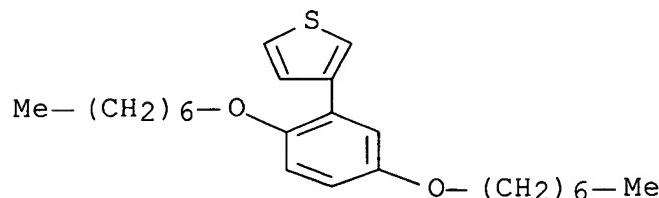
RN 240803-13-8 HCA

CN Thiophene, 3-[2,5-bis(heptyloxy)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 240803-12-7

CMF C24 H36 O2 S



CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36
ST polythiophene phenyl substituted monomer prepn oxidative polymn;
thiopheneboronic acid coupling aryl halide phenylthiophene prepn;
band gap photoluminescence efficiency polyphenylthiophene
conducting polymer
IT **Conducting** polymers
Luminescence, **electroluminescence**
Optical absorption
Order-disorder transition
(prep. and optical band gap and photoluminescence efficiency of
regio-regular phenyl-substituted polythiophenes via oxidative
polymn.)
IT 141807-85-4P 150773-53-8P 189283-30-5P
200574-66-9P 211045-92-0P 223655-08-1P
240803-05-8P 240803-07-0P 240803-09-2P
240803-11-6P 240803-13-8P
(prep. and optical band gap and photoluminescence efficiency of
regio-regular phenyl-substituted polythiophenes via oxidative
polymn.)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 11 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 130:312190 HCA Full-text
TI New polythiophenes with oligo(oxyethylene) side chains
AU Mammo, Wendimagegn; Andersson, Mats R.
CS Department of Chemistry, Addis Ababa University, Addis Ababa,
Ethiopia
SO Bulletin of the Chemical Society of Ethiopia (1998),
12(2), 141-150
CODEN: BCETE6; ISSN: 1011-3924
PB Chemical Society of Ethiopia
DT Journal
LA English
AB Four phenyl-substituted polythiophenes contg. oligo(oxyethylene) side
chains were synthesized. The absorption and photoluminescence
characteristics of the polymers were studied; all polymers are
reasonably stable to light and air. These polymers may find
applications in **light emitting** electrochem. cells since the
oxygenated side chains may be capable of solvating ions and thus
serve to transport ions.
IT 211045-92-0P, Poly[3-(4'-(1'',4'',7'''-
trioxaoctyl)phenyl)thiophene] 223655-08-1P,
Poly[3-(2',5'-bis(1'',4'',7'''-trioxaoctyl)phenyl)thiophene]
223655-11-6P, Poly[3-(2'',5'''-bis(1''',7'''-

trioxaoctyl)phenyl)-2,2'-bithiophene] 223655-14-9P,
Poly[3-[4''-(1''',4''',7'''-trioxaoctyl)phenyl]-2,2'-bithiophene]
(prepn. and optical properties of polythiophenes with
oligo(oxyethylene) ion-solvating side chains)

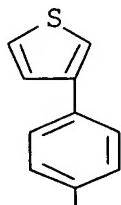
RN 211045-92-0 HCA

CN Thiophene, 3-[4-[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer
(9CI) (CA INDEX NAME)

CM 1

CRN 211045-91-9

CMF C15 H18 O3 S



MeO—CH₂—CH₂—O—CH₂—CH₂—O

RN 223655-08-1 HCA

CN Thiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-,
homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 223655-07-0

CMF C20 H28 O6 S



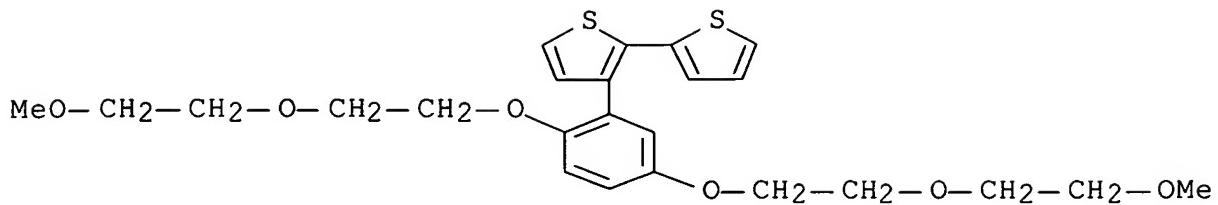
MeO—CH₂—CH₂—O—CH₂—CH₂—O—CH₂—CH₂—O—CH₂—CH₂—OMe

RN 223655-11-6 HCA

CN 2,2'-Bithiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-,
homopolymer (CA INDEX NAME)

CM 1

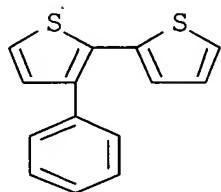
CRN 223655-10-5
CMF C24 H30 O6 S2



RN 223655-14-9 HCA
CN 2,2'-Bithiophene, 3-[4-[2-(2-methoxyethoxy)ethoxy]phenyl]-,
homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 223655-13-8
CMF C19 H20 O3 S2



MeO—CH₂—CH₂—O—CH₂—CH₂—O

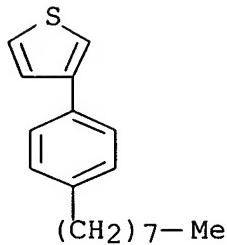
CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36, 73
ST polythiophene oxyethylene side chain prepn optical property;
luminescence optical absorption oxyethylene polythiophene;
conducting polymer ion solvation polythiophene oxyethylene
side chain
IT **Conducting** polymers
Coupling reaction
Luminescence
Optical absorption
(prepn. and optical properties of polythiophenes with
oligo(oxyethylene) ion-solvating side chains)
IT **211045-92-0P**, Poly[3-(4'-(1'',4'',7''-
trioxaoctyl)phenyl)thiophene] **223655-08-1P**,

Poly[3-(2',5'-bis(1'',4'',7''-trioxaoctyl)phenyl)thiophene]
223655-11-6P, Poly[3-(2'',5''-bis(1''',7'''-trioxaoctyl)phenyl)-2,2'-bithiophene] **223655-14-9P**,
Poly[3-[4''-(1''',4''',7''-trioxaoctyl)phenyl]-2,2'-bithiophene]
(prepn. and optical properties of polythiophenes with
oligo(oxyethylene) ion-solvating side chains)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 12 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 129:296824 HCA Full-text
TI Laminated fabrication of polymeric photovoltaic diodes
AU Granstrom, M.; Petritsch, K.; Arias, A. C.; Lux, A.; Andersson, M.
R.; Friend, R. H.
CS Cavendish Lab., Dep. Physics, Univ. Cambridge, Cambridge, CB3 0HE,
UK
SO Nature (London) (**1998**), 395(6699), 257-260
CODEN: NATUAS; ISSN: 0028-0836
PB Macmillan Magazines
DT Journal
LA English
AB Photoexcited electron transfer between donor and acceptor mol.
semiconductors provides a method of efficient charge generation
following photoabsorption, which can be exploited in photovoltaic
diodes. But efficient charge sepn. and transport to collection
electrodes is problematic, because the absorbed photons must be close
to the donor-acceptor heterojunction, while at the same time good
connectivity of the donor and acceptor materials to their resp.
electrodes is required. Mixts. of acceptor and donor semiconducting
polymers (or macromols.) can provide phase-sepd. structures which go
some way to meeting this requirement, providing high photoconductive
efficiencies. Here it describes two-layer polymer diodes, fabricated
by a lamination technique followed by controlled annealing. The
resulting structures provide good connectivity to the collection
electrodes, and we achieve a short-circuit photovoltaic quantum
efficiency of up to 29% at optimum wavelength, and an overall power
conversion efficiency of 1.9% under a simulated solar spectrum.
Given the convenience of polymer processing, these results indicate a
promising avenue towards practical applications for such devices.
IT **141807-85-4**, Poly(3-(4-octylphenyl)thiophene)
(red-shift structure film; laminated fabrication of polymeric
photovoltaic diodes)
RN 141807-85-4 HCA
CN Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CRN 141807-84-3
CMF C18 H24 S



CC 76-3 (Electric Phenomena)
Section cross-reference(s): 38, 72, 73
IT 166534-30-1
 (**light emission** material; laminated
 fabrication of polymeric photovoltaic diodes)
IT 141807-85-4, Poly(3-(4-octylphenyl)thiophene)
 (red-shift structure film; laminated fabrication of polymeric
 photovoltaic diodes)
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 13 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 129:101701 HCA Full-text
TI Sensitivity of polythiophene planar **light-emitting**
diodes to oxygen
AU Kaminorz, Yvette; Smela, Elisabeth; Inganaes, Olle; Brehmer, Ludwig
CS Institute Physics, Physics Condensed Matter/Solid State Physics,
Univ. Potsdam, Potsdam, D-14469, Germany
SO Advanced Materials (Weinheim, Germany) (1998), 10(10),
765-769
CODEN: ADVMEW; ISSN: 0935-9648
PB Wiley-VCH Verlag GmbH
DT Journal
LA English
AB Results from microfabricated LED's with **electrodes** underneath the
electroluminescent layer (surface LEDs), here with a rectangular
bottom ITO **electrode** sep'd. by a 2500 Å thick insulating layer of SiO₂
from a comb-shaped top Al **electrode**, are reported. The luminescent
polymer, poly[3-(2',5'-bis(1'',4'',7''-trioxaoctyl)phenyl)-2,2'-
bithiophene] (EOPT), was solvent cast on top of the **electrode**. The
polymer-on-top configuration allowed the gases to diffuse quickly
into the film during device operation and enabled PL measurements on
the same device. **Electroluminescence (EL)** was quenched by O which

also increased the electron current in EOPT. Removal of O caused the EL to recover and the current to fall again; but with different time consts. The quenching was not due to degrdn. PL was insensitive to O alone, so excitons were not directly involved in the quenching mechanism.

IT 223655-11-6

(electroluminescence quenching of planar LEDs caused by oxygen and their luminescence insensitivity against oxygen)

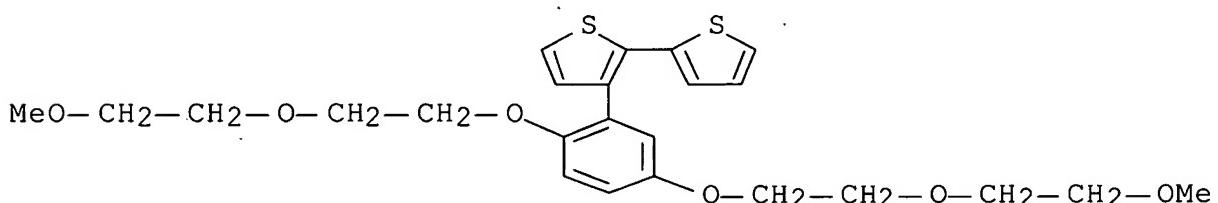
RN 223655-11-6 HCA

CN 2,2'-Bithiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer (CA INDEX NAME)

CM 1

CRN 223655-10-5

CME C24 H30 Q6 S2



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38, 76

ST polythiophene LED quenching oxygen **electroluminescence**
photoluminescence

IT Luminescence quenching

(electro-; of polythiophene planar LEDs caused by oxygen and their luminescence insensitivity against oxygen)

IT Electroluminescent devices

(electroluminescence quenching of polythiophene planar LEDs caused by oxygen and their luminescence insensitivity against oxygen)

IT Polymers, properties

(polythiophenes; **electroluminescence** quenching of polythiophene planar LEDs caused by oxygen and their luminescence insensitivity against oxygen)

IT 223655-11-6

(electroluminescence quenching of planar LEDs caused by oxygen and their luminescence insensitivity against oxygen)

IT 7782-44-7, Oxygen, processes

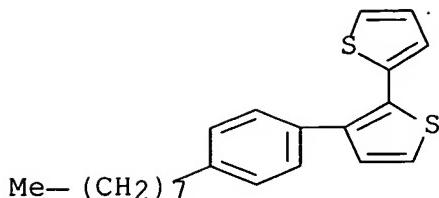
(**electroluminescence** quenching of polythiophene planar LEDs caused by oxygen and their luminescence insensitivity against oxygen)

L41 ANSWER 14 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 128:314531 HCA Full-text
TI Planar microfabricated polymer **light-emitting** diodes
AU Smela, Elisabeth; Kaminorz, Yvette; Inganäs, Olle; Brehmer, Ludwig
CS Department of Applied Physics, Linköping University, Linköping,
58183, Swed.
SO Semiconductor Science and Technology (1998), 13(4),
433-439
CODEN: SSTEET; ISSN: 0268-1242
PB Institute of Physics Publishing
DT Journal
LA English
AB Conjugated polymers are org. semiconducting materials that can **emit light**. These polymers have the advantages of being light, cheap and easy to process, and in addn. the band gap can be tailored. We report the microfabrication of surface **light-emitting** diodes (SLEDs) on silicon substrates in which the **electrodes** are underneath the org. **electroluminescent** layer. Patterned **electrodes** are sep'd. by a 2500. Å thick insulating layer of silicon oxide or are interdigitated with a sepn. of 10 or 20 µm; the luminescent polymer is spin coated or solvent cast on top of the **electrodes**. This fabrication method is completely compatible with conventional silicon processing because the polymer is deposited last and the **light** is **emitted** from the upper surface of the diodes. Despite the large spacing between **electrodes**, and despite the absence of an evapd. top contact, the voltages required for **light emission** were not much greater than those used in conventional sandwich-type structures. The polymers used were poly(3-(4-octylphenyl)-2,2'-bithiophene) (PTOPT) and polythiophene with oligo(ethylene oxide) side chains (EO-PT).
IT 159838-09-2, Poly(3-(4-octylphenyl)-2,2'-bithiophene)
223655-11-6
 (planar microfabricated polymer **light-emitting** diodes)

RN 159838-09-2 HCA
CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1
CMF C22 H26 S2



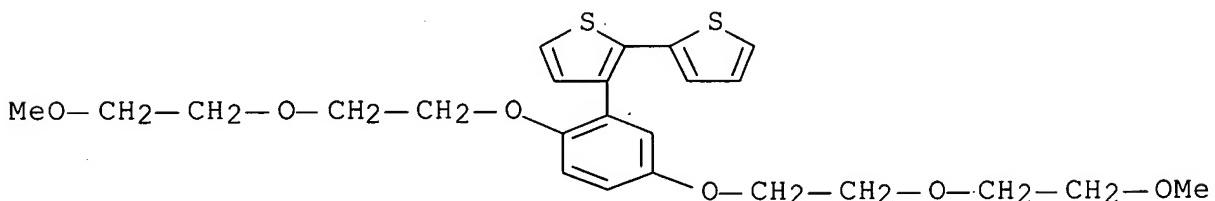
RN 223655-11-6 HCA

CN 2,2'-Bithiophene, 3-[2,5-bis[2-(2-methoxyethoxy)ethoxy]phenyl]-, homopolymer (CA INDEX NAME)

CM 1

CRN 223655-10-5

CMF C24 H30 O6 S2



CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38, 76

ST planar microfabricated polymer **light emitting** diode; conjugated semiconductor polymer **light emitting** diode; thiophene polymer deriv **light emitting** diode

IT Polymers, properties
(conjugated; planar microfabricated polymer **light-emitting** diodes)

IT Electric current-potential relationship
Electroluminescent devices
(planar microfabricated polymer **light-emitting** diodes)

IT Polymers, properties
(polythiophenes; planar microfabricated polymer **light-emitting** diodes)

IT 7631-86-9, Silica, uses
(insulating layer; planar microfabricated polymer **light**

-emitting diodes)

IT 159838-09-2, Poly(3-(4-octylphenyl)-2,2'-bithiophene)
223655-11-6
(planar microfabricated polymer **light-emitting**
diodes)

IT 7440-21-3, Silicon, uses
(substrate; planar microfabricated polymer **light-**
emitting diodes)

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

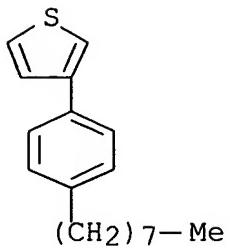
L41 ANSWER 15 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 126:336505 HCA Full-text
TI Self organizing polymer films-a route to novel electronic devices
based on conjugated polymers
AU Granstroem, Magnus; Berggren, Magnus; Pede, Danilo; Inganaes, Olle;
Andersson, Mats R.; Hjertberg, Thomas; Wennerstroem, Olof
CS Laboratory of Applied Physics, Department of Physics and Measurement
Technology, (IFM), Linkoping University, Linkoping, S-581 83, Swed.
SO Supramolecular Science (1997), 4(1-2), 27-34
CODEN: SUSCFX; ISSN: 0968-5677
PB Elsevier
DT Journal
LA English
AB Polymer blends are often used in polymer **light emitting** diodes as a
tool to increase the efficiency of the devices. The authors show the
necessity to take the phase sepn. properties of such blends into
account, as the miscibility of the involved polymers drastically
affects the resulting film structure. By using phase sepd. polymer
blends involving conjugated poly(thiophenes) and different
nonconjugated polymers as matrixes, different types of applications,
such as **light emitting** diodes with improved voltage control of
emitted color, sub-micron size LEDs and anisotropic **conductors** are
demonstrated.

IT 141807-85-4P 159838-09-2P, Poly[3-(4-octylphenyl)-
2,2'-bithiophene]
(self organizing polymer films for electronic devices based on
conjugated polymers)

RN 141807-85-4 HCA
CN Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 141807-84-3
CMF C18 H24 S



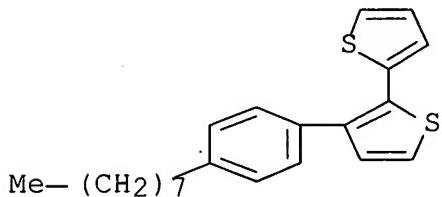
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38, 76

ST self organizing polymer film electronic device; **light emitting** diode polythiophenes polymer film

IT Electric **conductivity**
(anisotropic; of polythiophene polymer blends)

IT Luminescence

Luminescence, **electroluminescence**
(of polythiophene polymer blends)

IT **Electroluminescent** devices
(self organizing polymer films for electronic devices based on conjugated polymers)

IT 120659-35-0P, Poly[3-cyclohexylthiophene] 126673-99-2P

141807-85-4P 159838-09-2P, Poly[3-(4-octylphenyl)-

2,2'-bithiophene] 163045-79-2P

(self organizing polymer films for electronic devices based on conjugated polymers)

L41 ANSWER 16 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 126:306233 HCA Full-text

TI Phase separation of conjugated polymers - tools for new functions in polymer LEDs

AU Granstroem, M.; Berggren, M.; Inganaes, O.; Andersson, M. R.; Hjertberg, T.; Wennerstroem, O.

CS Laboratory of Applied Physics, Department of Physics, Linkoeping University, Linkoping, 581 83, Swed.

SO Synthetic Metals (1997), 85(1-3), 1193-1194

CODEN: SYMEDZ; ISSN: 0379-6779

PB Elsevier

DT Journal

LA English

AB Within the single family of substituted poly(thiophenes) it is possible to realize such diverse device designs as voltage controlled colors from polymer LEDs, sub-micron size LEDs, and white **light emitters**. Many of these features become possible by the use of polymer blends in which one or more poly(thiophenes) are mixed with a matrix polymer (PMMA). The phase structure in these blends can be controlled by stoichiometry and mode of formation. That phase structure can be used to prevent exciton transfer, and to define new colors in polymer LEDs. It also allows us to make anisotropic **conductors** suitable for contacting optical devices.

IT 141807-85-4, 3-(4-Octylphenyl)thiophene homopolymer

159838-09-2, Poly(3-(4-octylphenyl)-2,2'-bithiophene)

(PMMA-polythiophene deriv. blends for **LED** and phase sepn.)

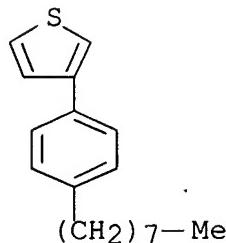
RN 141807-85-4 HCA

CN Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 141807-84-3

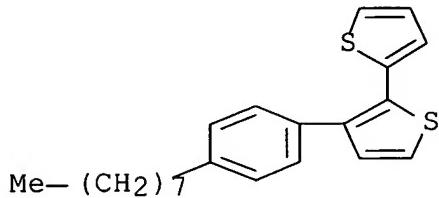
CMF C18 H24 S



RN 159838-09-2 HCA
CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1
CMF C22 H26 S2



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37, 73

IT **Electroluminescent** devices

Phase separation

(PMMA-polythiophene deriv. blends for **LED** and phase sepn.)

IT Polymer blends

(PMMA-polythiophene deriv. blends for **LED** and phase sepn.)

IT 9011-14-7, PMMA 120659-35-0, Poly(3-cyclohexylthiophene) 126673-99-2 **141807-85-4**, 3-(4-Octylphenyl)thiophene homopolymer **159838-09-2**, Poly(3-(4-octylphenyl)-2,2'-bithiophene) 163045-79-2
(PMMA-polythiophene deriv. blends for **LED** and phase sepn.)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L41 ANSWER 17 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 126:293945 HCA Full-text
TI New monomers for polythiophenes
AU Hellberg, J.; Remonen, T.; Johansson, M.; Inganaes, O.; Theander, M.; Engman, L.; Eriksson, P.
CS Organic Chemistry, Royal Institute of Technology, Stockholm, 100 44, Swed.
SO Synthetic Metals (1997), 84(1-3), 251-252
CODEN: SYMEDZ; ISSN: 0379-6779
PB Elsevier

DT Journal
LA English
AB Two series of chalcogen-substituted thiophene monomers were synthesized; 3-(4-alkylchalcogenophenyl)thiophenes and 3-(4-alkylphenylchalcogeno)thiophenes. Polymns. of these compds. with iron(III) chloride gave regiorandom polymers. Light-emitting diodes with low efficiency could be fabricated from 3-(4-alkylchalcogenophenyl)thiophene polymers.

IT 189073-07-2P 189073-08-3P

(prepn. and LED properties of)

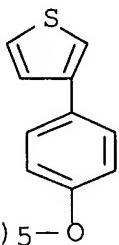
RN 189073-07-2 HCA

CN Thiophene, 3-[4-(hexyloxy)phenyl]-, homopolymer (CA INDEX NAME)

CM 1

CRN 189072-99-9

CMF C16 H20 O S



RN 189073-08-3 HCA

CN Thiophene, 3-[4-(tetradecylthio)phenyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 189073-00-5

CMF C₂₄ H₃₆ S₂



CC 37-2 (Plastics Manufacture and Processing)
Section cross-reference(s): 73
IT Polymers, preparation
(polythiophenes; prepn. and LED properties of
chalcogen-substituted thiophene polymers)
IT **189073-07-2P 189073-08-3P**
(prepn. and LED properties of)

L41 ANSWER 18 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 126:41405 HCA Full-text
TI Micromachined structure, its use, a micromachined device containing
the structure, and manufacture of the device
IN Smela, Elisabeth; Iganaes, Olle; Lundstroem, Ingemar
PA Smela, Elisabeth, Swed.; Iganaes, Olle; Lundstroem, Ingemar
SO PCT Int. Appl., 73 pp.
CODEN: PIXXD2

DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9634417	A1	19961031	WO 1996-SE539	199604 24

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W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, CZ,
DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GE, HU, IS, JP, KE,
KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,
MX, NO, NZ, PL, PT
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB,
GR, IE, IT, LU, MC, NL, PT, SE, BF

AU 9655209 A 19961118 AU 1996-55209

199604
24

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PRAI SE 1995-1547 A 19950427 <--
WO 1996-SE539 W 19960424 <--

AB A micromachined structure, esp. a microactuator, comprises ≥ 1 bi- or
multilayer hinges and ≥ 1 rigid components, the hinges serving to move
and/or position the rigid component(s) by bending under the influence
of ≥ 1 stimulus. In a preferred embodiment, the hinges are flexible,
offering a large degree of bending, and are small compared with the
area of the rigid components. In a further preferred embodiment, the
hinges are used to fold together the rigid components into predetd.
3-dimensional structures and/or to achieve 3-dimensional positioning

of ≥ 1 rigid components. In a further preferred embodiment, the bending of the hinges can be continuously controlled between the min. and max. degree of bending. In a further preferred embodiment, the hinges comprise an org. layer such as a **conducting** polymer.

IT 159838-09-2, Poly(3-(4-octylphenyl)-2,2'-bithiophene)
(micromachined structures and devices contg.)

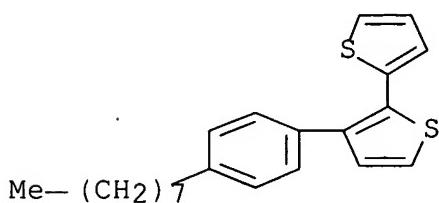
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



IC ICM H01L029-00
ICS H01L021-00

CC 76-7 (Electric Phenomena)

IT **Conducting** polymers
(micromachined device contg. hinges from)

IT **Electroluminescent** devices

Optical imaging devices

Pumps

(micromachined structures and devices for)

IT 7440-21-3, Silicon, processes 7440-47-3, Chromium, processes
7440-57-5, Gold, processes 25155-30-0, Sodium
dodecylbenzenesulfonate 30604-81-0, Polypyrrole 124221-30-3
159838-09-2, Poly(3-(4-octylphenyl)-2,2'-bithiophene)
(micromachined structures and devices contg.)

L41 ANSWER 19 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 124:328107 HCA Full-text

TI **Electroluminescent** device and a way to fabricate it

IN Berggren, Rolf Magnus; Dyreklev, Tord Peter; Inganaes, Olle Werner
PA Forskarpatent i Linkoeping Ab, Swed.

SO PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9603015	A1	19960201	WO 1995-SE859	199507 14
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	RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	SE 9402546	A	19960120	SE 1994-2546	199407 19
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	EP 793900	A1	19970910	EP 1995-926567	199507 14
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	R: DE, FR, GB, IT, NL				
	JP 10503614	T	19980331	JP 1995-504956	199507 14
				<--	
	US 5932965	A	19990803	US 1997-765812	199704 01
				<--	
PRAI	SE 1994-2546	A	19940719	<--	
	WO 1995-SE859	W	19950714	<--	
AB	Electroluminescent devices with light-emitting layers employing conjugated polymers are described in which the light-emitting layer, which is laminated with the substrate and the first electrode layer formed on the substrate, is fabricated at least in part in a sep. step. Preferably the light-emitting layer is pre-treated, in				

particular tensioned in one direction in order to orient the major part of the polymeric chains in the polymeric material in this direction. The **light-emitting** layer may comprise several component layers. The fabrication may entail a process in which at least a part of the **light-emitting** layer is applied by transferring it from a carrier or a support on which this layer was first made.

IT 141807-85-4, Poly(3-(4-octylphenyl)thiophene)

159838-09-2, Poly(3-(4-octylphenyl)-2,2'-bithiophene)
(**electroluminescent** devices with sep. fabricated
polymeric **light-emitting** layers and their
fabrication)

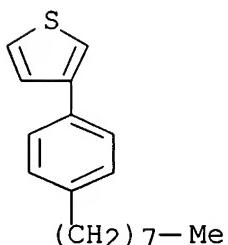
RN 141807-85-4 HCA

CN Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 141807-84-3

CMF C18 H24 S



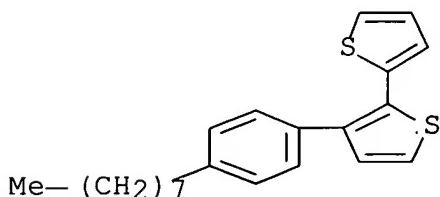
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



IC ICM H05B033-14
ICS C09K011-06
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76
ST **electroluminescent** device polymer emitting layer; LED
polymer emitting layer sep fabrication
IT **Electroluminescent** devices
(**electroluminescent** devices with sep. fabricated
polymeric **light-emitting** layers and their
fabrication)
IT Polyamines
(**electroluminescent** devices with sep. fabricated
polymeric **light-emitting** layers and their
fabrication)
IT Polyesters, uses
(**electroluminescent** devices with sep. fabricated
polymeric **light-emitting** layers and their
fabrication)
IT Polymers, uses
(polythiophenes, **electroluminescent** devices with sep.
fabricated polymeric **light-emitting** layers
and their fabrication)
IT 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 7439-95-4,
Magnesium, uses 7440-20-2, Scandium, uses 7440-22-4, Silver,
uses 7440-23-5, Sodium, uses 7440-70-2, Calcium, uses
7440-74-6, Indium, uses 25233-30-1, Poly(aniline) 50926-11-9,
Indium tin oxide 126213-51-2, Poly(3,4-ethylenedioxythiophene)
(**electroluminescent** devices with sep. fabricated
polymeric **light-emitting** layers and their
fabrication)
IT 9002-88-4, Poly(ethylene) 25038-59-9, Poly(ethyleneterephthalate),
uses 26009-24-5, Poly(p-phenylenevinylene) 104934-51-2,
Poly(3-octylthiophene) 120659-35-0, Poly(3-cyclohexylthiophene)
141807-85-4, Poly(3-(4-octylphenyl)thiophene)
159838-09-2, Poly(3-(4-octylphenyl)-2,2'-bithiophene)
160039-18-9, Poly(cyanoterephthalylidene) 163045-79-2
(**electroluminescent** devices with sep. fabricated
polymeric **light-emitting** layers and their
fabrication)

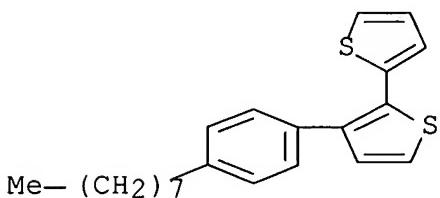
L41 ANSWER 20 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 124:303936 HCA Full-text

TI Polymer **light-emitting** diodes placed in
microcavities

AU Berggren, M.; Inganäs, O.; Granlund, T.; Guo, S.; Gustafsson,

Goeran; Andersson, M. R.
CS Laboratory of Applied Physics, Linkoeping University, Linkoping,
S-58183, Swed.
SO Synthetic Metals (1996), 76(1-3), 121-3
CODEN: SYMEDZ; ISSN: 0379-6779
PB Elsevier
DT Journal
LA English
AB Resonant optical microcavities were used to modulate the photoemission of conjugated polymer **light-emitting** diodes (LEDs). The microcavities, which are built using metallic mirrors and polymeric spacers, incorporate substituted polythiophenes LEDs in between the mirrors. The microcavity effects are: substantial narrowing of the spectral width of the **emitted light**, enhancement of the emission at the microcavity resonance, and coupling of two emission processes to different resonance modes in the same cavity.
IT 159838-09-2, Poly(3-(4-octylphenyl)-2,2'-bithiophene)
(microcavity **light-emitting**-diode with
substituted polythiophene emitter and semi-transparent
electrodes)
RN 159838-09-2 HCA
CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX
NAME)
CM 1
CRN 159838-08-1
CMF C22 H26 S2



CC 76-5 (Electric Phenomena)
Section cross-reference(s): 36
ST polythiophene LED photoemission microcavity effect;
electroluminescence emitter substituted polythiophene PLED
IT **Electroluminescent devices**
Luminescence, electro-
(microcavity **light-emitting**-diode with
substituted polythiophene emitter and semi-transparent

electrodes)

IT Siloxanes and Silicones, uses
(microcavity **light-emitting**-diode with
substituted polythiophene emitter and semi-transparent
electrodes)

IT Polymers, uses
(polythiophenes, microcavity **light-emitting**
-diode with substituted polythiophene emitter and
semi-transparent **electrodes**)

IT 7440-70-2, Calcium, uses
(**electrode**; microcavity **light-**
emitting-diode with substituted polythiophene emitter and
semi-transparent **electrodes**)

IT 15082-28-7, Butyl-PBD 159838-09-2, Poly(3-(4-octylphenyl)-
2,2'-bithiophene)
(microcavity **light-emitting**-diode with
substituted polythiophene emitter and semi-transparent
electrodes)

IT 7429-90-5, Aluminum, uses
(mirror/**cathode**; microcavity **light-**
emitting-diode with substituted polythiophene emitter and
semi-transparent **electrodes**)

IT 7440-57-5, Gold, uses
(semi-transparent **anode**; microcavity **light-**
emitting-diode with substituted polythiophene emitter and
semi-transparent **electrodes**)

IT 694-87-1D, Benzocyclobutane, thermally polymd.
(spacer; microcavity **light-emitting**-diode
with substituted polythiophene emitter and semi-transparent
electrodes)

IT 7440-21-3, Silicon, uses
(wafer mirror; microcavity **light-emitting**
-diode with substituted polythiophene emitter and
semi-transparent **electrodes**)

L41 ANSWER 21 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 124:188917 HCA Full-text

TI Ultraviolet electroluminescence from an organic light emitting diode

AU Berggren, Magnus; Granstroem, Magnus; Inganaes, Olle; Andersson, Mats

CS Lab. Applied Phys., Linkoeping Univ., Linkoeping, S-58183, Swed.

SO Advanced Materials (Weinheim, Germany) (1995), 7(11),
900-3

CODEN: ADVMEW; ISSN: 0935-9648

PB VCH

DT Journal

LA English

AB An org. UV LED was developed combining poly[3-(4-octylphenyl)-2,2'-bithiophene] (PTOPT) and 2-(4-biphenyl)-5-(4-t-butylphenyl)-1,3,4-oxadiazole (PBD). Devices basing on a 1st layer blended of PBD and PTOPT and a 2nd layer of PBD with different thicknesses and stoichiometric ratios were prep'd. Photoluminescence and electroluminescence was performed; the latter gave an max. external quantum efficiency of 0.1% and an emission max. at 394 nm. SEM images of the sandwich structures were shown.

IT **159838-09-2**, Poly[3-(4-octylphenyl)-2,2'-bithiophene]
(UV electroluminescence and photoluminescence from an org.
LED)

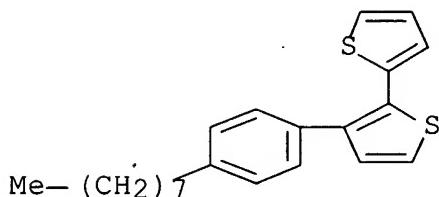
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX
NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT Electroluminescent devices

Luminescence

(UV electroluminescence and photoluminescence from an org.
LED)

IT 15082-28-7 **159838-09-2**, Poly[3-(4-octylphenyl)-2,2'-bithiophene]

(UV electroluminescence and photoluminescence from an org.
LED)

L41 ANSWER 22 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 124:159903 HCA Full-text

TI Color source and method for its fabrication

IN Andersson, Mats Roland; Berggren, Rolf Magnus; Gustafsson, Bengt Goeran; Hjertberg, Ulf Thomas; Inganaes, Olle Werner; Granstroem, Arne Magnus

PA Forskarpatent i Linkoeping AB, Swed.
SO PCT Int. Appl., 16 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9531515	A1	19951123	WO 1995-SE549	199505 16
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	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ				
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	SE 9401688	A	19951118	SE 1994-1688	199405 17
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	SE 506019	C2	19971103		
	AU 9525427	A	19951205	AU 1995-25427	199505 16
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PRAI SE 1994-1688 A 19940515 <--
JP 1995-529576 A3 19950516 <--
WO 1995-SE549 W 19950516 <--

AB **Light-emitting polymer diode device** for obtaining voltage controlled colors, based on thin polymer films incorporating >1 electroluminescent conjugated polymer for which the emission is a mixt., controlled by the applied voltage, of the emissions from the >1 polymers.

IT 141807-85-4 159838-09-2, Poly(3-4-octyl-phenyl-2,2'-bithiophene)
(color sources based on tunable electroluminescent devices using polymer blends and method for its fabrication)

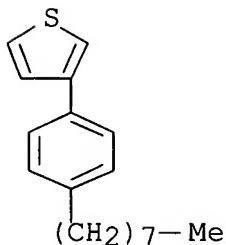
RN 141807-85-4 HCA

CN Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI). (CA INDEX NAME)

CM 1

CRN 141807-84-3

CMF C18 H24 S



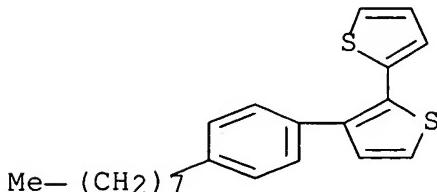
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1

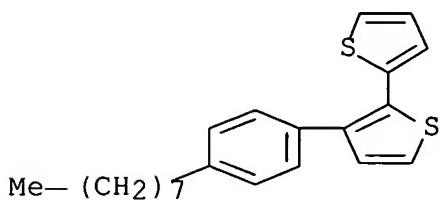
CMF C22 H26 S2



IC ICM C09K011-06
ICS H05B033-14
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
IT 9011-14-7, PMMA 120659-35-0 **141807-85-4**
159838-09-2, Poly(3-4-octyl-phenyl-2,2'-bithiophene)
173385-87-0
(color sources based on tunable electroluminescent devices using polymer blends and method for its fabrication)

L41 ANSWER 23 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 124:132568 HCA Full-text
TI Flexible arrays of submicrometer-sized polymeric light emitting diodes.
AU Granstroem, Magnus; Inganaes, Olle
CS Dep. Phys. Measurement Technol., Linkoeping Univ., Linkoeping, S-58183, Swed.
SO Advanced Materials (Weinheim, Germany) (**1995**), 7(12), 1012-15
CODEN: ADVMEW; ISSN: 0935-9648
PB VCH
DT Journal
LA English
AB The light emission of a luminescent polymer of octylphenyl-2,2'-bithiophene (PTOPT) in a matrix of polymethacrylate (PMMA) arranged on a thin film of poly(3,4-ethylene dioxythiophene) (PEDOT) was investigated as a function of voltage. PTOPT is the optically and elec. active phase that gives light emission. By tuning the wt. stoichiometry between the 2 polymers, a situation can be reached where the PTOPT forms small (50-200 nm) islands in the insulating matrix. Light-emitting diodes from these small islands will then become the light emitters when appropriate electron- and hole-contacts are applied. The use of PEDOT as the contact material results in lowering the efficiency by roughly a factor of 6 compared to ITO.
IT **159838-09-2**, Poly([3-(4-Octylphenyl)-2,2'-bithiophene])
(polymeric light-emitting diodes of PTOPT in PMMA matrix on PEDOT contact)
RN 159838-09-2 HCA
CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CRN 159838-08-1
CMF C22 H26 S2



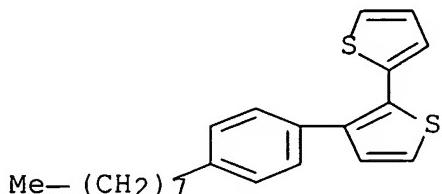
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 73
IT Electroluminescent devices
(polymeric light-emitting diodes of PTOPT in PMMA matrix on PEDOT contact)
IT 9011-14-7, PMMA 126213-51-2, Poly(3,4-ethylene dioxythiophene)
159838-09-2, Poly([3-(4-Octylphenyl)-2,2'-bithiophene])
(polymeric light-emitting diodes of PTOPT in PMMA matrix on PEDOT contact)

L41 ANSWER 24 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 124:101355 HCA Full-text
TI White light emission from a polymer blend light emitting diode
AU Granstroem, Magnus; Inganes, Olle
CS Lab. Appl. Phys., Linkoeping Univ., Linkoeping, S-581 83, Swed.
SO Applied Physics Letters (1996), 68(2), 147-9
CODEN: APPLAB; ISSN: 0003-6951
PB American Institute of Physics
DT Journal
LA English
AB A new type of polymer light emitting diodes that emit white light is reported. In these diodes, several electroluminescent substituted polythiophenes were combined to give the necessary components of the visible spectrum. These emitting polymers are then mixed with an insulating polymer to diminish the energy transfer from high-band-gap polymers to low-band-gap polymers. The resulting emission at 20 V is close to the equi-energy white point as defined by the CIE (Commission Internationale de l'Eclairage).
IT **159838-09-2**, Poly(3-(4-octylphenyl)-2,2'-bithiophene)
(white light emission from polymer blend light emitting diode)
RN 159838-09-2 HCA
CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT Electroluminescent devices

(white light emission from polymer blend

light emitting diode)

IT 21287-85-4 120659-35-0, Poly(3-cyclohexylthiophene) 126673-99-2

159838-09-2, Poly(3-(4-octylphenyl)-2,2'-bithiophene)

(white light emission from polymer blend light emitting diode)

L41 ANSWER 25 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 123:300930 HCA Full-text

TI Polarized electroluminescence from an oriented substituted polythiophene in a light emitting diode

AU Dyreklev, Peter; Berggren, Magnus; Inganaes, Olle; Andersson, Mats R.; Wennerstroem, Olof; Hjertberg, Thomas

CS Lab. Applied Phys., Linkoeping Univ., Linkoeping, S-58183, Swed.

SO Advanced Materials (Weinheim, Germany) (1995), 7(1), 43-5

CODEN: ADVMEW; ISSN: 0935-9648

PB VCH

DT Journal

LA English

AB Polarized light sources based on stretch-oriented conjugated polymers (SCP), i.e. poly(3-(4-octylphenyl)-2,2'-bithiophene were reported, which showed 0.1% external quantum efficiency and were produced using a simple method extendable to other SCP. The fabrication of the devices was described and the emission and spectral differences parallel and perpendicular to the stretching direction were discussed.

IT **159838-09-2**

(polarized electroluminescence from oriented substituted polythiophene in LED and LED fabrication)

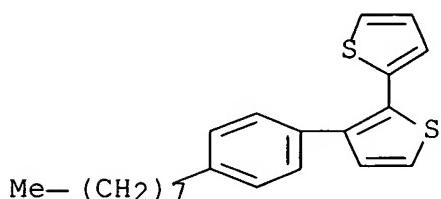
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX
NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 38

IT Electroluminescent devices

Luminescence, electro-

(polarized electroluminescence from oriented substituted polythiophene in LED and LED fabrication)

IT 159838-09-2

(polarized electroluminescence from oriented substituted polythiophene in LED and LED fabrication)

L41 ANSWER 26 OF 27 HCA COPYRIGHT 2007 ACS on STN

AN 123:229595 HCA Full-text

TI Electroluminescence from Substituted Poly(thiophenes):

From Blue to Near-Infrared

AU Andersson, M. R.; Berggren, M.; Inganaes, O.; Gustafsson, G.; Gustafsson-Carlberg, J. C.; Selse, D.; Hjertberg, T.; Wennerstroem, O.

CS Departments of Organic Chemistry and Polymer Technology, Chalmers
University of Technology, Goeteborg, S-412 96, Swed.

SO Macromolecules (1995), 28(22), 7525-9

CODEN: MAMOBX; ISSN: 0024-9297

PB America

DT Journal

LA English

AB We report a systematic approach to the control of the conjugation length along the poly(thiophene) backbone. The planarity of the main chain can be permanently modified by altering the pattern of substitution and character of the substituents on the poly(thiophene)

chain, and the conjugation length is thus modified. We obtain blue, green, orange, red, and near-IR **electroluminescence** from four chem. distinct poly(thiophenes). The external quantum efficiencies are in the range of 0.01-0.6%.

IT 141807-85-4, 3-(4-Octylphenyl)thiophene, homopolymer

159838-09-2

(blue-near IR **electroluminescence** of substituted poly(thiophenes))

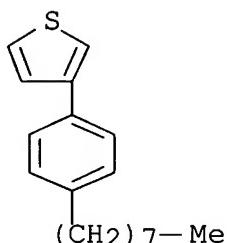
RN 141807-85-4 HCA

CN Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 141807-84-3

CMF C18 H24 S



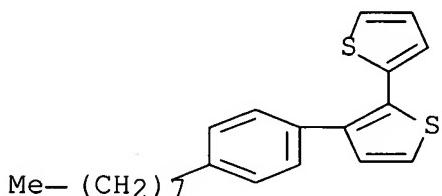
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 73, 76

ST **electroluminescence** substituted polythiophene; HOMO energy
substituted polythiophene; oxidn potential substituted polythiophene

IT Electric conductors, polymeric
 Luminescence, electro-
 Raman spectra
 (blue-near IR **electroluminescence** of substituted
 poly(thiophenes))

IT Chains, chemical
 (conjugation length; blue-near IR **electroluminescence**
 of substituted poly(thiophenes))

IT Molecular orbital
 (HOMO, blue-near IR **electroluminescence** of substituted
 poly(thiophenes))

IT Electric potential
 (oxidn., blue-near IR **electroluminescence** of
 substituted poly(thiophenes))

IT Polymers, properties
 (polythiophenes, blue-near IR **electroluminescence** of
 substituted poly(thiophenes) in the presence of)

IT 120659-35-0, 3-Cyclohexylthiophene homopolymer **141807-85-4**,
 , 3-(4-Octylphenyl)thiophene, homopolymer **141807-85-4**,
 Poly[3-(4-octylphenyl)-2,5-thiophenediyl] **159838-09-2**
159838-09-2, Poly[3-(4-octylphenyl)[2,2'-bithiophene]-5,5'-
 diyl] 160848-56-6, Poly[3-cyclohexyl-4-methyl-2,5-thiophenediyl]
160848-57-7, Poly[3-cyclohexyl-2,5-thiophenediyl] 163045-79-2
 (blue-near IR **electroluminescence** of substituted
 poly(thiophenes))

IT 15082-28-7
 (blue-near IR **electroluminescence** of substituted
 poly(thiophenes) in the presence of)

L41 ANSWER 27 OF 27 HCA COPYRIGHT 2007 ACS on STN
AN 122:118398 HCA Full-text

TI Light-emitting diodes with variable colors from polymer blends

AU Berggren, M.; Inganäs, O.; Gustafsson, G.; Rasmussen, J.; Andersson,
M. R.; Hjertberg, T.; Wennerstrom, O.

CS Lab. Applied Physics, Univ. Linkoping, Linkoping, S-581 83, Swed.

SO Nature (London) (**1994**), 372(6505), 444-6
CODEN: NATUAS; ISSN: 0028-0836

PB Macmillan Magazines

DT Journal

LA English

AB The range of materials now available for polymer-based light-emitting
diodes (LEDs) is such that electroluminescence can be obtained
throughout the visible spectrum¹⁻¹². By blending polymers with
different emission and charge-transport characteristics, LEDs can be
fabricated in which the emission color varies as a function of the

operating voltage. This phenomenon arises from the self-organizing properties of the blends, in which entropy drives phase sepn. of the constituent polymers and gives rise to submicrometer-sized domains having a range of compns. and emission characteristics. Emission from domains of different compn. is controlled by the ease with which charge is injected, which in turn depends on the applied voltage.

IT 141807-85-4 159838-09-2

(light-emitting diodes with variable colors from polymer blends based on thiophene derivs.)

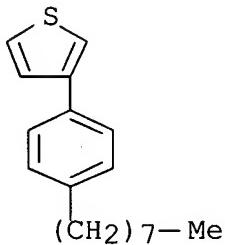
RN 141807-85-4 HCA

CN Thiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 141807-84-3

CMF C18 H24 S



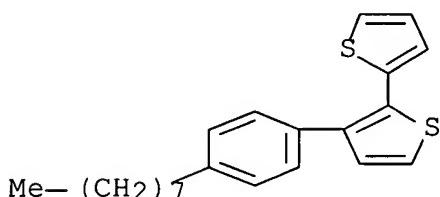
RN 159838-09-2 HCA

CN 2,2'-Bithiophene, 3-(4-octylphenyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 159838-08-1

CMF C22 H26 S2



CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related

Properties)

Section cross-reference(s): 76

IT Electroluminescent devices

(LED with polymer blends based on thiophene derivs.)

IT Luminescence, electro-

(of LED with polymer blends based on thiophene derivs.)

IT 7429-90-5, Aluminum, uses 7440-70-2, Calcium, uses
(electron injecting contact in LED with polymer blends
based on thiophene derivs.)

IT 15082-28-7

(in LED with polymer blends based on thiophene derivs.)

IT 50926-11-9, Indium tin oxide **141807-85-4**

159838-09-2 160848-56-6 160848-57-7,

Poly(3-cyclohexyl-2,5-thiophenediyl)

(light-emitting diodes with variable colors from polymer blends
based on thiophene derivs.)